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The Sir Richard Stawell Oration.[1]

PERSONALITY PROBLEMS IN ANTARCTICA.

By PHILLIP LAW,
Director, Antarctic Division, Department of External Affairs.

A LITERARY CRITIC, writing of a recently published antarctic book, said that the book described everything except what the men concerned thought or felt. One can understand the inhibitions which prevent a member of an expedition, upon his return, from writing an account of his experiences which deals frankly with his personal relations with other members of the party. Nevertheless, nothing is more important in any polar expedition than the preservation of harmony amongst the members, and if returning leaders do not write of their experiences and recommendations, how are future leaders to avoid repeating the mistakes of the past?

The dearth of information in polar literature concerning the psychological aspects of expeditionary work has led me to choose this subject for my address tonight. I am not a trained psychologist, and those who expect an erudite and scientific treatment of the subject on a professional level will be disappointed. I can only tell you of the results of my experiences and those of my expedition leaders, not what has been statistically proved from a carefully controlled and statistically immaculate series of experiments. However, I am in the favourable position of having been personally involved in the selection, the dispatch and the assessment of the results of some 30 separate expeditions in the last 12 years, and I can therefore discuss men and their reactions with little chance of any single man out of the 500 concerned being identified and embarrassed by what I say. I can only further preface my remarks by saying that all characters in this discussion are based upon real and living persons, whom they are intended to resemble as closely as the limitations of the written word will allow.

The Pattern of Living at an Antarctic Station.

Before I can discuss men's personalities and their interactions at an antarctic station, I must first describe the pattern of living at such an outpost.

The word "remote" has its greatest significance at such a place. Mawson, Australia's main antarctic base, is separated from Melbourne by 3500 miles of stormy Southern Ocean. For the greater part of the year, the last few hundred miles of this ocean are frozen, and this prevents access by ship. Men who go there in January are cut off from all except radio contact with the civilized

[1] Delivered at a meeting of the Victorian Branch of the British Medical Association on October 7, 1959.

world for 12 months. The station is situated on a narrow speck of rock on the fringe of the vast and desolate continental ice sheet of Antarctica. Easy movement is restricted to an area of about one-quarter of a square mile. A journey in any direction from the station outside this area necessitates the mounting of a field expedition. Most of the men, therefore, live for most of the year incarcerated in this little village which man's ingenuity has set up in this isolated spot; and they know that, whatever happens, no help can reach them. It is the irrevocability of their exile which oppresses them. This is why no short test period in the wilderness can simulate the stresses of an antarctic environment.

The sense of isolation is increased by a number of deprivations—the lack of female companionship, of comforts and luxuries, of variety in food, liquor and amenities, and of daily contact with a wide range of different human beings.

Amongst men thus thrown together, trifling personal peculiarities can cause mounting exasperation, and harmless peccadillos produce serious resentments. The psychological strains are aggravated by physiological factors resulting from the disturbance of well-established diurnal rhythms of the human body during the long mid-winter night, or in the period of continuous summer daylight. Insomnia, or the "big-eye" as the Americans call it, is an occupational disease in the antarctic winter. In addition, there are the depressing effect of frequent high winds and dull, cloudy weather, and the constant battle against cold.

To balance this rather depressing weight of disadvantages, there are a number of alleviations and compensations in antarctic life, quite apart from the more obvious rewards such as broadened experience, the gratification of an ambition or a sense of adventure, and the contemplation of magnificent scenery.

First, the existence of an expedition member is socially uncomplicated. No such simplified existence is possible in a civilized community. There is no money, and therefore no financial anxiety. One has no concern about social status—the Joneses have been left far behind—and any petty inferiorities of dress, possessions and social graces cease to have significance. Nor does one have to balance delicately the rival obligations to one's wife, one's children, one's job, one's garden and one's sporting acquaintances.

Secondly, a man with ambition and interest in his work can devote himself to it wholeheartedly with little interruption and few distractions. There is no time wasted in travel, in social engagements or in holidays and weekends. A scientist can accomplish two years' work in one at an antarctic station.

Thirdly—and this is most important—a man is judged in Antarctica by his companions largely on the basis of his efficiency in his job.

One of our mechanics, with a prickly and over-compensated personality, was held in high respect because of his capability and his devotion to his job. As one man said, "Joe is a regular stinker as a bloke, but he's a damn good diesel man".

A recent American report (Mullin and Connery, 1959) cites the case of a man who, although markedly schizoid and withdrawn, was universally regarded as one of the more capable and valuable members of the party.

A good man thus experiences a double sense of accomplishment—the realization of having done his job well, and the gratification of knowing that his competence has been appreciated by his fellows (a gratification not always forthcoming in an urban community). A sense of accomplishment is essential for most of us, and in large organizations today good management is seeking ways of providing such satisfaction to those in the less important jobs. In Antarctica, however, it is easy—everyone can see the immediate result of his work, and take credit for his personal contribution to the success of the year's programme.

Imagine, then, this tightly-knit group of between 20 and 30 men of divers accomplishments, personalities and backgrounds—radio operators and diesel mechanics, aircraft pilots and ground crews, physicists and meteorologists, cook and carpenter, medical officer and geologist, glaciologist and surveyor—led and held together by a leader who, unsupported by any disciplinary system of controls, must lead by enthusiasm and example and his own knowledge of human nature.

Stresses and Strains in an Isolated Community.

The main stresses at such a station are psychological stresses: those between individuals, those between groups and those between the leader and his party. With a good leader, the two last-mentioned types of stress are greatly reduced, so I shall first consider the individual and his problems.

In a large city a man with peculiar characteristics, strange prejudices or embarrassing weaknesses can often escape from stress situations merely by avoiding them. If he does not like his job he can change it; if he does not get on well with one type of person he can choose another type as his acquaintance. If he likes company he can live gregariously, but if he is a solitary type he can be anti-social without attracting too much attention. He can bolster his confidence by joining ego-protecting associations and clubs, and shelter behind their conformist activities. Even gross weaknesses in character can be reasonably well hidden by frequent changes of job and domicile.

At a remote station a man's avenues of escape are considerably restricted, and his chances of hiding his weaknesses are almost nil. Even the desire to hide them disappears. One of my medical officers, on his return, said: "Life on such stations definitely shows people in their true colours, if only for the reason that there is so little point in keeping up pretences under such circumstances".

Although our establishments are run as "classless societies", and everything possible is done to place all members of a team on an equal footing, deeply ingrained social or intellectual inferiorities in men cannot be eradicated overnight, and these present some of the worst problems that we experience. They tend to occur mainly amongst technical staff, particularly men of low intelligence and inferior educational qualifications. A man with a strong sense of inferiority may tend to be aggressive and difficult in his relations with other men, and therefore become unpopular. This increases his sense of inferiority and the size of the chip on his shoulder, which makes him even more unpopular. There is thus a descending spiral of deterioration in his morale, often accompanied by a developing persecution complex, which evinces itself in petty expressions as, for example, in the case of the man who insisted that the cook always used more pots whenever he was rostered for wash-up duty.

Often, however, a good technician who starts the year with only minor inferiorities gathers strength, as he goes, from the acknowledgement by others of his efficiency in his particular field. He may thus complete the year with greater emotional stability than at the beginning.

One example was that of a man of a low standard of education who in general conversation felt the lack of his ability to contribute to the same extent as others. His conversation tended, therefore, to be restricted to three or four subjects on which he was violently pedantic. He countered the learning in others by being over-critical of their personal qualities. As a result he was at first far from popular. However, he improved as the year proceeded, as he gradually realized that inexperienced men with high scholastic honours were willing to learn from the technical men, and that his own wealth of practical experience gave him prestige in their eyes.

Examples of superiority complexes, on the other hand, are not infrequent. Intellectual arrogance is common among young, freshly-graduated scientists, but the influences at a station tend to correct this fault rather than to accentuate it as the year goes by. Such young men soon find that there is much they have to learn in practical things from the technicians, and that men who have been out in the hard world for 20 years have acquired a good deal of general wisdom which they lack.

Two kinds of groups or cliques tend to develop at a station. The first kind is simply made up of men performing the same kind of job. Thus, the four radio men, the four meteorologists, the four physicists and the five R.A.A.F. personnel at Mawson are separate self-contained groups, each held together by the common aims and efforts of their members. Solid team spirit within each group is, of course, a desirable attribute; but at our stations, where separate work huts are provided for each of these sections, there is a tendency for some sections to develop cliques, between which unhealthy rivalries can easily develop. For this reason we try to break up these groups when allocating men to sleeping huts, for the members of any one sleeping hut (six or seven in number) also tend to form a clique. On one or two occasions cliques

FIGURE I.

The ANARE station at Mawson with the continental ice cap and Mount Henderson in the background. The building (left centre) at the water's edge is the aircraft hangar. (ANARE photograph by George Lowe.)

formed by a group of older ex-servicemen on one side and the young newly-graduated scientists on the other have caused us concern, because of the complete lack of sympathy each has displayed for the ideas of the other.

A less healthy type of clique is that formed by malcontents or men who, because of their unpopularity with the rest of the party, are forced to seek each other's companionship. Companions in adversity, men who lack friends gravitate together. I have seen some strange associations formed in this way. On one occasion, a man of high intelligence and first-class education became the inseparable companion of an uncultured artisan of low mentality, purely because both had individual personalities that made them unpopular with the rest of the party.

A good leader watches out for the first signs of aggressive clique rivalries which, if allowed to develop unchecked, might cut right across the team spirit of the whole party. He is also careful not to associate himself too closely with any one group. One of the characteristics of a really bad party is that, at the end of 12 months, it has disintegrated into a number of separate and hostile cliques.

An interesting story was told to me by the leader of a French expedition. When personalities clashed during the year, and resentments flared which threatened to disrupt the unity of the party, he deliberately made himself unpopular by a series of severe edicts. His action had the effect of uniting the dissident members, who joined together in concerted opposition to his directives. By careful use of this stratagem he was able to hold the party together as a team. He was a strong man who was not frightened of the isolation to which his actions subjected him. His men referred to him as the Lama.

Two U.S. psychologists, Mullin and Connery (1959), noted a similar case in an American party. They reported that "the group managed to achieve a certain cohesion and a marked reduction of internally-generated tensions, in part, by virtue of their identical feeling toward the common source of aggrievement, the leader".

A leader must always suffer to some extent from the loneliness of his position. He must be prepared to accept the fact that most men like to grumble about something, and that he will be the obvious target for their dissatisfaction. However, it is far better for dissatisfaction to focus upon an impersonal and vague "organization", or its director, back in Melbourne, than upon the leader at the station. Generally, by the time the expeditions return, any petty resentments have been forgotten or reviewed in their correct perspective.

All our experience underlines the basic importance of intelligence and education, and much trouble at a station is avoided if men can be chosen who have a reasonable measure of both. Such men seem to have more flexible minds and fewer rigid prejudices. They have wider interests and are not easily bored. Their inner resources are greater, and they are more self-sufficient. Above all, they have the sense to analyse situations, and to use their minds to control their reactions.

Self-control is essential if one is to live in harmony with a group of men at close quarters. A happy party is not the fortuitous result of circumstance; it is a goal which is achieved only if men appreciate the complex factors which contribute towards it, and are willing to make a considerable effort to attain it.

Even without instruction, most men at an antarctic station instinctively realize the need for holding their emotions on a tight rein. For instance, quarrels serious enough to end in a brawl back home rarely terminate in

FIGURE II.

The ANARE station at Mawson is an elaborate installation of some 30 huts set on a restricted outcrop of rock at the coastal edge of the Antarctic ice cap. (ANARE photograph by Phillip Law.)

physical violence in Antarctica. Men seem to be innately aware of the irrevocable nature of an actual blow in an environment where for months to come one must daily meet one's antagonist face to face. Nevertheless, the amount of conscious and deliberate self-control which will be exercised in emotional situations can be greatly increased if men are lectured before departure on the importance of restraint and the avoidance of provocative action.

Intelligence is not only important as a factor in emotional stresses; it is, in my opinion, a vital factor in dangerous situations where a man's survival is threatened, particularly if the circumstances involve an unfamiliar environment. This is, of course, nothing new. Observations made in battle and in prison camps during the war showed that intelligence and imagination were more important in stress situations than physique, and that generally the

well-built ox of a man with low basic intelligence cracked up before his frailer, more intellectual companion. It seems as though each man is surrounded by a sphere of known things within which he moves and lives. Beyond this stretches the blackness of the unknown, with its consequent primitive fears and superstitions. For the uneducated, ignorant man of low intelligence, the sphere is quite small and the blackness looms terrifyingly close. For the intelligent man, particularly if he is imaginative and well-educated, the periphery of the sphere of known things has been pushed far back, and his roving imagination can push even further out, so that almost no situation in which he can be plunged can be completely unfamiliar. It is fear which kills, fear which paralyses, fear which either prevents constructive action or produces blind panic. The educated, intelligent man, at whom fear strikes less effectively, and who is better equipped mentally to exert the necessary will-power to control it, can therefore often surmount such stress situations when men of lower mental calibre succumb.

Further to this theme, I prefer to choose men who have had a wide experience of bush walking, camping, mountaineering or skiing, not only because this indicates their love of adventure, but because they have experienced nature in her unfriendly moods, and are less likely to be appalled by the fury of the elements.

One cook whom I took south was an ex-serviceman of of the gregarious type, with no outdoor experience. He had spent most of his adult life surrounded by men, both at work and in his leisure moments in the Air Force mess. He had not served outside Australia during the war, and his work as cook had been mainly in large establishments. When he saw the grim, icy ramparts of his destination looming out of the gale-driven mists, and had to climb down a swaying rope ladder at the ship's side into a bobbing launch, he was terrified. During his year there he did not venture more than a few hundred yards from the station, and never succeeding in overcoming his fear of the place.

In the U.S. report already quoted, Mullin and Connery (1959) state:

> Among the characteristics that appeared to augur well for good group adjustment and acceptance were tolerance for the weaknesses of others, capacity for a balanced appraisal of a situation, discretion, an inclination towards hard work, technical competence, and an ability to use leisure time enjoyably either alone or with others. On the other hand, characteristics that were normally a source of distress to the group included a penchant for contentiousness, overt anti-authoritarian trends, undue sensitivity about the matter of rights and privileges, a need to take immediate aggressive action in response to grievances, fancied or real, and above all, sloth. To put the matter quite simply, a man could be highly individualistic, unconventional or even eccentric and still be accepted and acceptable, provided that he worked hard and well and did not "bother" anyone otherwise.

I have mentioned that most men appreciate the need for self-control, and that such control seems better exercised by men of higher intelligence. Mullin and Connery (1959) noted that headaches were the most common psychosomatic complaint, and that they occurred more frequently amongst the scientists and officers than amongst the Navy enlisted men. They reported that the headaches were apparently related to the sharply-felt need for careful control of aggression, and they ascribed the difference between the two groups to the more complete repression of their hostilities by the former group. Another American psychiatrist (Rohrer, 1959) also noted the greater incidence of headaches amongst the intellectuals of the antarctic workers whom he examined. In our experience, the commonest psychosomatic symptoms have been those associated with the digestive tract, such as dyspepsia and various abdominal pains. Headaches rate far lower in the list, and are not more common amongst the intellectuals. Other ills are insomnia, with its consequent ailments, and rheumatic "aches and pains". The most frequently prescribed medicine is aspirin.

When headaches have been notable amongst our intellectuals, they have been associated with over-worked, over-conscientious men struggling day after day with heavy routines of observation and instrument maintenance in the face of numerous difficulties, rather than with the repression of aggressive tendencies. Of one, the medical officer wrote:

> He has had a lot of headaches lately. He appears to be absolutely stale—he is the only person who has not yet been away from the Station. He has to get up at 6.30 a.m. every morning to attend to his equipment and works late every night. I will try and get him away to an outlying station as a break from his heavy routine.

A medical officer who accompanied two of our expeditions reported to me:

> I do not think there were any marked deviations from normal behaviour in the parties of which I was a member. There was, naturally, a tendency towards some loss of sense of proportion, shown by a liability to become unduly pre-occupied by trifles, prone to petty annoyances, etc. There was also (contrary to what many people expect) a loss of interest in what was going on in the outside world. Most of us seldom bothered to listen to wireless news at all. If anything really important happened we felt we would be sure to get to know of it somehow. The radio operators were an exception to this, but, for the rest of us, the world had shrunk to the size of our small island. Far more interesting to me than individual behaviour were the extraordinary differences between men of different years. No two parties were alike, even in their physical habits.

I can confirm this last statement. Some years the men wear long hair and beards, some years they do not. One party will eat out all the station's supply of honey, another party will not touch it. One doctor had only very rare demands for laxatives, but a later party cleaned out the station's whole supply—a supply which would have lasted many years at the rate of consumption of the preceding parties.

Food becomes an item of the greatest importance in Antarctica. All sledging parties, living on hard rations, dream of banquets, and most expedition men talk of the exotic foods they will eat when they return. In spite of this, I am sure that most of our men eat better at our stations than they do at home, and most of them certainly eat more. Almost all men put on weight, and doctors often have to advise men to diet. This is not only because the climate and hard work encourage healthy appetites. In addition, food acts as a psychological compensation for other deprivations. Good eating is certainly one of the greatest single pleasures that an expedition can afford, and a good cook is a highly respected, popular member of the party. One requisitioning cable I received in Melbourne near the end of a year read: "Send one good cook, pack well in cotton wool."

The graph of the morale at a station shows a fairly regular pattern each year. It starts off at a low level during the relief period, when the men who have just arrived, unsure of themselves in their strange new environment, feel ill at ease in the presence of the previous, experienced party, and long for the departure of the ship so that they can be completely alone with their new possessions and responsibilities. When the ship sails their morale surges up to its highest point, and for several months the general activity and enthusiasm are maintained at this level. Then the long winter night with its limitation of outdoor activity and its absence of sunshine causes a general deterioration in morale, varying in degree with different parties. The graph rises again when the sun returns, and men can busy themselves preparing for spring and summer field trips. Another high point is finally reached in the last two months, when the prospect of relief looms attractively close, and the contemplation of unfinished work spurs on to renewed efforts men who wish to complete their tasks. However, any suggestion of a delayed relief can at this stage plunge the party into gloom. During the return voyage, the men's behaviour is in marked contrast with that exhibited during their outward trip. They are lethargic, lacking in exuberance, cynical, more individually isolated, drained of intense

feeling and interested in little except their early delivery to a home port.

The mid-winter "low" in morale is generally accompanied by insomnia in a large proportion of men. In a big party this is not serious; as most suffer from it, it becomes accepted as normal. Members of the "Insomniacs Club" wander about at all hours of the arbitrary "night", play darts or cards, argue interminably, and concoct fantastic brews by mixing malted milk, milk powder, chocolate or coffee with various proprietary milk-based beverages. However, in a small party, the situation can be more serious. As we all know, the worst thing to do about insomnia is to worry about it, and a man who is the only "insomniac" amongst four or five sound sleepers is hard to reassure.

FIGURE III.
The ANARE station at Davis is seen here in winter. In summer the ice and snow melt off, and the station stands in the midst of a barren expanse of rock. (ANARE photograph by W. R. J. Dingle.)

The interesting feature of insomnia is that it tends to occur more during the mid-winter period of 24 hour darkness than during summer's continuous daylight. No doubt the high peak of outdoor activity which coincides with the summer is the differentiating factor here. I have been informed of cases in which men have had to be placed under restraint during the period of winter darkness, but have reverted to normal upon the return of the sun.

An accident in which members of a party lose their lives can have a shattering effect upon morale. The protective illusion of "it can't happen to me" is violently dispelled by death striking in the very midst of the small, closely-knit group, and all feel suddenly naked and vulnerable. If the accident occurs in the field, the remaining men may tend to avoid further field work. Recovery takes some time, for the removal of specialist men from the station leaves gaps which provide innumerable daily reminders of their loss. The degree of impact of a fatal accident upon a party is dependent upon a number of factors. The better the *esprit de corps* of the party, the greater the feeling of loss, but the easier the readjustment. The more remote the location and the smaller the party, the more stunning will be the effect.

The medical officer is a most important member of the party, for he not only stands between the men and their fears of injury and illness, but he acts as father-confessor in a way that no other person in the party can. Confidential reports from medical officers have provided a valuable mass of psychological material for our study. One problem which frequently arises is the reluctance of members of a party to agree to the doctor's participating in any field trip which will cause his absence from the station for more than a few days. Men at a remote station are much more conscious of the threat of accident or illness than men in an ordinary community where medical facilities are readily available, and they tend to be very much more cautious. It is not unusual for certain men at a station to decline to participate in a field trip because of its added content of danger.

One man, reasonably intelligent, happily married with two children, was a popular and effective member of the party, despite occasional fits of depression caused by worrying over his wife and family. He developed a keen enjoyment of field trips and proved an excellent companion. However, he tended as the year progressed to avoid trips which he thought had an element of danger; yet, when confronted by a dangerous situation, he showed extreme steadiness and reliability. He did not accept a place in the team for a summer journey for fear of missing the relief ship. This fear played on his mind to a marked extent, and thoughts of injury and death which would leave his young family unprotected overrode his strong sense of duty and his personal liking for field work.

One of the most difficult subjects for study at an antarctic station is that of sex. What do we know of the sexual disturbances and abnormalities caused by the deprivation of women's company suffered by men at these stations? We know very little. We do know that no single deprivation counts as greatly as that of women. However, this matter is much broader than the narrow question of the lack of natural sexual intercourse. I venture to say that, for a number of reasons, sexual deprivation in the narrow sense is not nearly as important as many people might expect; while the lack of female companionship in the wider sense is felt very greatly. At a large foreign southern station there was a woman, the wife of one of the officers, who remained at the station for two years. This woman—middle-aged, intelligent, sympathetic and warm-natured—had a profoundly stabilizing influence on the men, whom she mothered and advised with remarkable wisdom.

In our experience, men seem to accept the absence of any sex life realistically; their attitude can be summed up by the sentence: "There is nothing you can do about it, so the less you think of it the better." Ameliorating factors are, first, the absence of the constant sexual

FIGURE IV.
Tractor train 300 miles south of Mawson. (ANARE photograph by N. Collins.)

stimulants which abound in a civilized environment (pretty girls, advertisements, sexy magazines and films and so on) and, secondly, the sublimation of sexual energy into hard work which undoubtedly occurs. Men do miss wives and sweethearts, and at times they miss them desperately—particularly in moments of emotional stress, and particularly when family events at home worry them; but for the greater part of the time the men appear untroubled. One wonders whether the cold climate provides some sedative influence.

As for homosexuality, I can say we have had no overt cases, although some incipient tendencies in a few instances have been noticed.

For example, one older man could not resist running his fingers through the blond hair of a young, good-looking lad each time he passed him, which finally provoked the youth into threatening to cut his throat if he did it again.

I heard that one man—an ex-seaman—did some soliciting on one occasion, but there were no takers. There seems little doubt that this problem would arise more acutely at an idle than at a busy station. Also, to some extent, overt homosexual trends that are socially acceptable (such as "mateship" or "buddyism" and strong sympathetic and protective behaviour) provide natural male outlets for homosexual instincts, and play a part in decreasing the incidence of frank perverted behaviour.

Gambling, I expected, might be a problem. That we have none is not due to the fact that I prohibited it. It is, I think, due to two things. Most men expect to save money; they know that if they gamble one man will finish up with the money of all the others; therefore, they do not gamble. Furthermore, it is hard to gamble realistically with "I.O.U's" or with matches, in the absence of good hard cash.

The use of alcohol is a vexed question. Most officers-in-charge, from the viewpoint of pure discipline, would recommend "dry" stations. However, the use of alcohol in moderation has certain advantages: it decreases tension and helps men to relax; it removes inhibitions and lets men with grievances "blow off steam". Further, I personally feel that there are enough unavoidable deprivations at an antarctic station—I would be loath to add another one arbitrarily. With a good party and a strong leader there is usually no trouble. I have banned strong spirits, but we supply beer and table wines in moderation. A variety of patterns of control have been tried. The generally accepted pattern now is sherry and port on the sideboard, beer and wines for "ding" nights. (A "ding" is a celebration and, with birthdays and calendar feast-days as the excuse, occurs about once a week, generally on Saturday night. The cook puts on a special meal, table wines are served, and afterwards there are beer and a picture show. Those who can afford to sleep in on Sunday stay up late, with music and talk.)

There is no ration of alcoholic beverages per man—a non-drinker gets none, and for the others a bulk supply is put out. When spirits were provided, there was a tendency for a few hardened drinkers to consume most of the issue. They often then became troublesome, if not actually violent, and sometimes "passed out" in the snow on the way to their sleeping quarters. This could have led to serious results if they had not been found early. Two case histories show the differing effects of liquor upon men with deep-rooted inferiority complexes.

The first man, when sober, concealed his sense of inadequacy beneath a native capacity for cheerfulness, kindness and cooperation. In these normal circumstances he was energetic, responsible, mild of manner and of pleasant personality. However, over the years he had apparently sought the solace of alcohol in the face of his problems. Although fully aware of his weakness, he was unable to go for long periods without turning to this comfort and, once he started drinking, lost control in a very short time. He then became foul of speech, querulous and truculent. Striding about the room and compelling the attention of all, he would go out of his way to insult and provoke his companions. Remorse invariably set in with a return to sobriety, bringing shamefaced apologies and promises of good behaviour.

The second man commenced the year exhibiting a hearty personality, a buoyant optimism and a fund of good humour. Combined with a general willingness to help, these features installed him as one of the most popular members of the party, although at times he seemed unsure of himself and showed signs of immaturity in his personality. However, separation from his family and the stresses of the environment brought about a degree of emotional strain which became more acute as the year wore on. His deep-seated sense of inferiority gave vent to expression in a variety of ways, notably caustic criticism of expedition headquarters, extreme sensitivity to any reflection upon his own work, a violent prejudice against Englishmen and English machines, outbursts of violent temper and a tendency to "winge" on all occasions. The last-mentioned proved corrosive to general station morale, and made him extremely unpopular. Here, however, is the interesting point. Although this man was extremely fond of his liquor, he never sought it as a release from his troubles, and his behaviour was not noticeably affected by heavy consumption. The arrival of the relief ship at the end of the year produced a sharp upward trend in his morale. By the time the ship returned to Australia he was the genial, good-humoured, happy person he had been at the beginning.

Time after time we see this strange change of personality when a man goes to a southern outpost, followed by a reversion to normal immediately upon his return, so that no person at home could ever be persuaded that the man could have behaved as he did in his antarctic environment. How is one to cope with this kind of hazard when selecting men?

I have spoken of inferiority complexes associated with low intelligence and poor education. Some quite different problems, however, have arisen with occasional newly-graduated scientists of considerable ability. Here the problem seems to be one of protracted adolescence, and a resentment of any form of disciplined living. A combination of a burning sense of the importance of the "freedom of the individual", with a lack of experience of life and people outside a student environment and a certain amount of intellectual arrogance, produces some remarkable behaviour. Priggishness, sarcasm and a supercilious condescension are in themselves unpopular traits, but when they are combined with undisciplined work, late rising and a complete neglect of personal hygiene, the resultant animosity aroused can be imagined.

Mention of late rising leads me to note that there is a general tendency amongst the scientific personnel to wish to turn the clock about by working very late at night and sleeping during the day. This causes resentment amongst men who must rise punctually for schedules. They ask: "How do we know they work late at night? They are probably reading novels!" So much trouble has been caused by tardy rising that we now insist on punctual rising by all men at our stations.

One year a tough, highly-independent man of touchy disposition, with a basic resentment against authority, started lying in bed late each morning. The officer-in-charge pondered the action he should take, realizing that a direct order would result only in abuse. He finally decided upon an effective stratagem. Each morning he set a well-arranged tray of breakfast and personally carried it to the man concerned. After three mornings the independent man could stand it no longer, and thereafter he arose on time.

Occasionally one encounters the deliberate "trouble-maker". Two of the most subtle of this type in our experience worked in different ways to cause disruption.

One man, adopting mental as a substitute for physical aggression, for which he was inadequately equipped, would start an argument, then withdraw and watch others become heated; or he would set one man against another, even inventing imaginary incidents to do so, and then enjoy the resultant squabble.

The second example involved a more selfish form of trouble-making. The man concerned, well-educated, but with some basic sense of insufficiency, gained a strong influence over a mechanic, of poor education and low intelligence, who was probably flattered by his attentions. The educated man would hypocritically keep on good terms with men whom he disliked, and arrange for the other man to cause the trouble which he thought up. For example, when he disagreed with the physicists he would work on the mechanic's persecution complex to persuade him to "arrange" power failures which would affect their equipment; or, if he became resentful of a man engaged in field work, he would intrigue for the mechanic to announce that the tractor would be "out of order" when the field party was about to set out.

Neuroses and Psychoses in Antarctica.

Fortunately, the incidence of severe mental illness at antarctic stations is very low, owing to the care with which men are selected. Neuroses of varying degrees of severity, however, are fairly common, and some severe anxiety states have been recorded. These neurotic states arise from a variety of causes. Frequently they occur amongst men who are brought face to face in this exacting environment with their own ineptitude in some field or other, and who suffer from an acute feeling of insufficiency in the face of problems from which there is no escape other

than a neurotic one. Aggressive, blustering behaviour is often adopted by such men to hide their feelings of inadequacy.

A typical case is afforded by the "bluffer", the man who "sells himself", when interviewed, at a higher level than his true worth, and pretends to competence which he does not possess in order to be chosen. When delivered at a station, he finds himself faced with certain exposure amongst critical men with whom his bluff can no longer succeed.

One such man became highly neurotic within two weeks of his arrival at a station. He began exhibiting hypochondriacal symptoms, then passed to strongly aggressive behaviour, and finally relapsed into a state of severe depression punctuated by frequent attacks of hysteria. Over two months he displayed a wide variety of complaints —lumbago, dyspepsia, palpitations, skin soreness, vague aches and pains, imaginary lumps over various parts of the body. He also described hearing strange voices, finding himself in strange places, and speaking face to face with his wife, and he complained of claustrophobia and persecution. He developed a mysterious fever, with high temperatures and general malaise, which lasted for more than a week. He used many of his complaints as an excuse for idleness, and would become hysterical if asked to carry out some definite job. It is not surprising that he was accused of malingering.

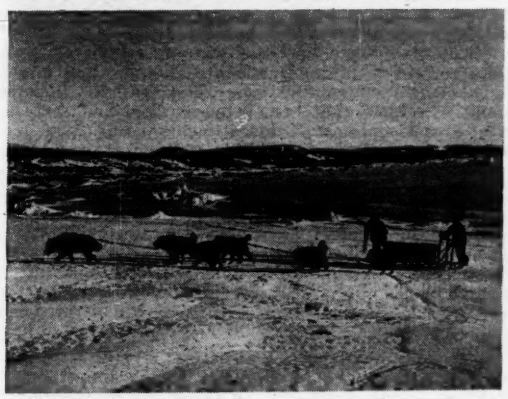

FIGURE V.

Huskies and dog sledge coming ashore after sledging over sea ice near Davis station. (ANARE photograph by W. R. J. Dingle.)

This man had talked himself into a job of some responsibility, which turned out to be far beyond his capabilities. First, he tried to bluster his way through by adopting a purely supervisory role and accusing his subordinates of inefficiency and incompetence. When the men appealed to the officer-in-charge and these accusations were shown to be quite false, he cracked up and, thereafter, consciously or subconsciously, built up a pattern of behaviour designed to lead to his repatriation. It is not surprising that this acute anxiety state disappeared when he returned to Australia.

A similar form of anxiety neurosis will sometimes occur in an over-conscientious man who, perhaps quite unjustifiably, begins to worry about successfully coping with his job. Such a man, driving himself to the point of exhaustion, will often develop insomnia and other nervous ailments. The anxiety state of the authoritarian type of leader who fails to obtain the support of his party is another example of neurotic behaviour. This is a complex matter in which offended ego, a sense of failure, a tendency to drive himself to the limits of his physical strength, and the reaction upon him of the resentment of the antagonized members of his party all play a part.

Homesickness, fear of the dangers of the environment, family problems at home, violent personal antipathies between men—these can all produce neurotic symptoms.

As a result of these anxiety states, some striking examples of psychosomatic illness have been exhibited.

One leader late in the year developed severe symptoms attributed to his gall-bladder, and was treated accordingly by his doctor. He was placed on a fat-free diet, and drugs were administered over a period of six weeks to relieve his severe pain. When the relief ship arrived he was removed from the arena of stress and taken on board. There the drugs were discontinued, and he was allowed to eat what he liked. His symptoms disappeared, only to reappear when ten days later he was sent ashore temporarily to give advice on certain expedition activities. Even on board the ship, however, any serious discussion of expedition activities would cause a return of the pain. Upon his return to Australia he was thoroughly investigated and radiologically examined, but showed no signs of gall-bladder disease.

One over-conscientious man suffered insomnia and then collapse from what appeared to be a cardiac complaint, as a result of a growing anxiety concerning his work. He was relieved of all duties and moved to another environment. He recovered fairly well, and resumed light duties carrying much less responsibility than his previous job. Two months later he was placed temporarily in a situation reminding him of his previous stress environment, and he immediately suffered a relapse. Again, upon his return to Australia, a careful check failed to find any organic trouble.

One strange example was that of a man, a bachelor, who developed psychosomatic symptoms of lumbago. He was of an equable nature, hard-working and popular with everyone. His health had been good and he had complained of nothing. However, the nearer the relief ship approached at the end of his year, the more worried and depressed-looking he became. Finally he developed "lumbar fibrositis", which the doctor was convinced was purely an expression of his troubled mind. There was some evidence to show that upon his return he would have to face up to certain decisions about his future career that he had been postponing for some time.

The most acute case of depression was that of a very young man who had led a sheltered life coddled by an over-possessive mother. Within a week or two of his arrival at a southern station he became acutely homesick, and thereafter degenerated rapidly. He lost all interest in any form of activity, his own personal habits deteriorated steeply and in spite of the sympathetic endeavours of his companions he could not be stirred from his deep lethargy. The morale of the whole station was severely affected. His inability to contribute towards any useful activity robbed him of much of the sympathy which his comrades in the early stages were genuinely willing to express.

Cases of psychotic behaviour are rare, and only one clear case has been noted in our history. This was one of paranoid schizophrenia which followed a fairly standard pattern. In the early stages, with a strong possibility of suicide, the man had to be watched continuously.

Another man, neurotic rather than psychotic, who in a depressed state threatened to shoot himself, was successfully dealt with by a companion in very down-to-earth fashion. "Look, mate", he said, "I have put a ·45 revolver over on that oil drum, loaded. You go over and shoot yourself. But just in case you think of shooting up someone else instead, or if you should miss with your first shot, remember I have a loaded ·303 right here."

Rohrer (1959) has stated that all six people evacuated by U.S. authorities for psychiatric reasons developed symptoms of mental disturbance in from one to four weeks after going ashore in Antarctica. Our experience has been similar, the worst cases of mental disturbance occurring within from two to eight weeks of the departure of the relief ship which landed the men. Apparently the impact of the environment is immediate and severe. Serious breakdowns in Antarctica occur mostly in young men aged less than 25 years, but this is not confined to Antarctic experience.

Administrative Methods of Reducing the Stresses.

A separate lecture could be given on the subject of good leadership. All I shall say here is that nothing is so important for the psychological well-being of a party as the appointment of a first-class leader, and nowhere are the qualities of leadership subjected to more gruelling tests than at an antarctic station.

However, given a good party and a good leader, there is much that can be done administratively to reduce the stresses at a station. First, the men must be welded into a team before departure. In the city where they first gather, most of the influences to which they are subjected are cohesive; but once they go south the influences are predominantly disruptive. By having the men work together, play together and drink together before their departure, and by lecturing them on all aspects of expedition work, it is possible to build up a solid team spirit, based upon understanding and mutual respect, which has a fair chance of surviving the later stresses to which it will be subjected. If one wants a specific result, one must make a specific effort to achieve it, and we are realizing more and more the value of training and indoctrination of expedition men prior to embarkation. During a special week of lectures, men are given information on the aims and ideals of the expeditions, the scientific and exploration programmes, the use of antarctic clothing and field rations, methods of survival, unloading techniques, administrative and accounting procedures, techniques of travel, first aid, factors governing morale, patterns of behaviour, and desirable and undesirable traits in expedition men. The importance of each job at the station is explained, and each man is made to feel that he is an important and, in fact, an indispensable member of the party. On one side, the university graduates are warned against the evils of intellectual arrogance and the misdirected use of their critical faculties; on the other side, the artisans are given talks aimed at building up their confidence and explaining the points of view of other categories of men in their party. Undesirable patterns of behaviour are instanced and discussed with the combined parties. Finally, talks on leadership and methods which have proved satisfactory in dealing with common stress situations and patterns of undesirable behaviour are given to chosen leaders, who are also expected to read official diaries and logs from previous years.

There is one quality, which so far I have not mentioned, that is fundamentally essential in any team. It is loyalty. A man must be loyal to the expedition, loyal to his leader and loyal to himself. Some men are naturally loyal; some are fundamentally antagonistic, critically outspoken and disloyal. The majority, however, have never given the matter much thought. A talk on loyalty before the expedition departs opens up points of view which are quite new to many of the men. They must understand that to back up their leader when they agree with him is no test of loyalty; it is when they disagree that they must stand behind him.

Because a man's avenues of escape at a remote station are very restricted, it is essential that some private and personal refuge be provided to which he can retire to be apart from his companions. At our stations each man has a separate cubicle containing a bunk, writing desk, chest of drawers and wardrobe. In addition, each work hut is separate, and men come to regard their work huts as semi-private retreats. In the evening a man who does not wish to join the society of the recreation hut will often go back to his work hut and continue with his job, rather than retire to his cubicle. The attitude of a man to his work hut is similar to that of a scientist to his laboratory.

As I have said, an ANARE station is a classless society in which all men have equal rights and partake equally of the general load of camp duties. Even the officer-in-charge takes his turn as mess boy to help wash up, set tables and sweep out. Work loads are arranged to approximate to the upper level of what men can accomplish. Their work is never finished and, as they chase the carrot of allotted tasks which dangles before their eyes, the year races through.

The careful rostering of general duties, the specification of spheres of responsibility and the printing of an operations manual to govern the running of the station—all these show the men exactly where they stand, and thus prevent unnecessary and damaging arguments and quarrels at the station. By posting general duty rosters at least a month ahead, the officer-in-charge gives men the chance to interchange allotted duty hours to fit in with any special plans they may have for their own particular jobs.

To prevent anxieties arising (particularly amongst the married men) concerning families and loved ones, some form of radio communication between the men and their next of kin is essential. We provide a certain number of free words by radiogram to each man each month; we circulate a monthly newsletter to next of kin giving latest news from the stations; and we send to the stations a monthly news bulletin containing overseas, local and sporting news of consequence.

Once a week a national radio station broadcasts a special short-wave fifteen-minute programme under the title "Calling Antarctica". This includes request musical numbers and a personal broadcast by one of the men's next of kin. This has a marked tonic effect on morale. Some men possess amateur radio licences and can make contact with other amateurs by radio-telephone direct from Antarctica. We do not, however, provide an official and regular radio-telephone service to next of kin because the Postmaster-General's regulations do not permit this via amateur channels.

The U.S. authorities have a system whereby an expedition member can use an amateur radio installation at an antarctic station to make contact with an amateur organization in U.S.A., which will connect him by telephone to his next of kin. This has advantages when emergencies arise at home which worry the expedition men. However, it has disadvantages, too. Men who are completely isolated make certain mental adjustments and abandon any idea of personal communication. The rather impersonal monthly "cables" that pass between them and their loved ones are laconic and unsentimental, and are merely designed to indicate that all is well on both sides.

I do not think it is altogether wise to disrupt this cocoon of isolation. Some men who have spoken directly by radio-telephone to their wives tend to be disturbed and depressed for several days after the initial exhilaration of the personal communication fades. Also, there are wives whose regular telephone conversations to their isolated husbands would degenerate into catalogues of petty worries and nagging grievances which the husband could just as well do without.

At the stations there is a variety of amenities: a library, a piano, table tennis, billiards, a radiogram, cinema programmes, cards, chess, etc. Of these, the most interesting, and probably the most valuable morale-builder, is the cinema.

The greatest obstacle to the building of a happy, contented and well-adjusted party is the difference in cultural levels of various men. What topics of conversation can be common to all? How does a leader prevent the development of an intellectual clique at meals, when the more erudite men gather at one end to discuss philosophical profundities, and the less informed members, tiring of the continual high-brow conversation, sit and jeer and try to break it up? It is here that the cinema is important; not so much because it provides an escape from the environment, but because it creates talking points for conversation.

After a good show, the men can talk for days about pictures they have seen and the relative merits of various actors and actresses. In such conversations all may participate, and no man's opinion is worth any more than another's.

At one station the film "Pride and Prejudice" was a particular favourite. It was shown time after time and frequently, for variety, it was shown with the sound turned off, and the men chanted in unison the dialogue which, by this time, they knew by heart. When I arrived to relieve the party, I was at a loss to account for the quaint mid-Victorian quality of the men's everyday dialogue and the old-world courtesy of their behaviour, until I was told of the influence of this film throughout the station.

Another great value of the film is that it is a source of group enjoyment. Men are brought together and partake together of what the evening has to offer. One of the most bizarre evenings one can spend is at a cinema show at an

antarctic station where, with a blizzard howling through the radio masts outside and an overheated smoke-laden atmosphere within, one sits sipping beer and chewing nuts and listening to the clever and unprintable interjections with which the tough expedition men pepper the corny dialogue of the more sentimental passages.

Another good topic of general conversation is motor-cars, particularly as most men who winter down south return with a year's savings and the firm intention of buying a new car. Here, the mechanic has some advantage in the discussions. (I remember the consternation on board a relief ship on its way back to Melbourne one year when the manufacturers of an Australian car announced over the radio that the price had been raised by £80.)

A very marked feature of the psychology of antarctic stations is the hunger for recognition and praise exhibited by many of the men. This is most apparent amongst those with strong inferiority complexes, to whom I have already referred. This desire is a perfectly normal one, which is accentuated when the man down south counts up the hardships, the deprivations and the dangers he has to face in carrying out his work. When the task is completed, he quite naturally expects a pat on the back. It is possible, also, that in Antarctica he suffers from the lack of such everyday recognition and praise which, back at home, arises normally in the home environment—the commendation and the loving adulation of mother, wife and children. A good leader can go far towards gaining the loyalty and goodwill of such men by the judicious use of praise, by making sure that other members of the party are notified of the special achievements of individuals, and by guaranteeing that published reports will give adequate recognition of the personal achievements of the separate men. Adequate Press publicity for the expedition as a whole is also essential if men who return after a year at a station are to feel that their accomplishments have been recognized.

The Selection of Personnel: Why Men Go South.

Most people with whom I discuss this subject have the impression that the applicants for a job range from very poor on one hand right up through every variation to very good on the other, and that all that is needed by the selector is some measure of omniscience in order to obtain the perfect choice. In practice it is much more difficult. Often, for the highly skilled positions, there are few applicants, and one is left with very little effective choice at all. When the only healthy, qualified and capable applicant is of doubtful emotional stability, we sometimes have no alternative but to send the man, warn his leader, and keep our fingers crossed.

The man I have learned to avoid most is the group-disruptive egotist. Overweening egotism is always dangerous; but a certain amount of ambition and pride is essential to produce the driving force which forges ahead when the going is toughest. If one can find a man with ambition, who is proud of his accomplishments and is eager to excel, but who is humble in spirit and self-critical in outlook, then one has a very powerful combination indeed. Aggressive, combative types are a menace. The popular conception of an expedition consisting of a collection of big, tough, aggressive individuals is quite wrong.

When I first started interviewing men, I was very susceptible to a display of enthusiasm. If a young man, with eyes glowing, said, "Look, Sir, I'd give anything to go to the Antarctic. I am a plumber by trade, but I will go as a mechanic, or a cook, or a deck hand, or anything so long as I can go", then I would be strongly tempted to take him. However, I have found that enthusiasm can be quickly damped, and curiosity can soon be satisfied, and such a man is then left with nothing else to do day by day but to slave at a job he may not like.

Without qualification, I shall say that the first and most important requirement in an expedition man is that he shall love his job. If his job is also his hobby, he will never be bored in Antarctica.

The second essential is unselfishness, which embraces thoughtfulness for others. The "bludger", the selfish man, the "to hell with you, mate, I'm all right type"—these are the most unpopular men at a station. In a community where each individual depends for his very existence upon his colleagues, and where almost every job requires at some stage the assistance of a second man, the fellow who will not offer to help others is seldom liked. The man who will not pull his weight, and who slacks or is incompetent in his specialized job, is highly resented. Men can be roused to a furious pitch of anger by repeated thoughtless acts, such as leaving doors open, tramping muddy snow over clean floors, entering sleeping huts noisily late at night, to say nothing of more selfish acts such as appropriating more than a fair share of a commodity or finding excuses to avoid rostered chores.

Closely behind unselfishness I would place tolerance—tolerance of other men's views, other men's idiosyncrasies, other men's failings. The tolerant and kindly man is a stabilizing influence in any team.

Optimism, I think, is important. Pessimists I avoid like the plague, also cynics. One small dash of pessimism or cynicism can flatten the exuberance of the most enthusiastic team.

A sense of adventure and an avid curiosity are desirable, but we have had good men who possessed neither.

Character, "guts" and "stickability" are basically essential, for a year is a long time and the difficulties which confront a man are many.

I draw no line regarding age: some men at 45 are younger in heart and body than others at 30. It is unusual, however, for a man past 40 years to possess the necessary physical drive and energy we require. However, as our standards of physical fitness are very high, and all men must undergo a searching examination before being finally accepted, this question solves itself.

There seem no particular arguments for preferring married to unmarried men. The married men are, on the whole, more stable and contented; but if anything goes wrong at home during their absence, they worry badly and their morale suffers. It is risky to take newly-married men—that is, men who have been married for less than a year. In general, their morale suffers as the year proceeds.

The man who has had a great number of jobs always arouses my misgivings when I interview him. In some cases his love of adventure may have prevented him from settling in one place; in others his ambition may have made him climb the ladder quickly, using each short appointment as a stepping-stone to a better one. Both these types I can accept. However, I must beware of the man who cannot stick at any job for more than a month or two, and I must avoid the man who leaves behind him a broad pattern of failure in his endeavours.

Most men, if honest, admit that a desire to save money is one of their reasons for enlisting; but so long as this is not the only motive which they recognize, I do not think it need be considered as undesirable.

Another group of men who apply in great numbers are the escapists. These, too, require individual assessment. One does not waste too much time on the man who wants to escape from insoluble marital complications, or the man with the life pattern of failure who desperately hopes that in his next job "things will be different". There is, however, the man who, because of social deficiencies rather than defects in character, has found civilized life in a modern city overwhelmingly complex. He believes that somewhere, away from it all, he could be a success. Often he is right. In the simple life at an antarctic station an escapist of the latter type, who is good at his job and amiable to his fellows, will earn their respect for his work and experience a sense of achievement in spite of his lack of social confidence. He will find that he is happy and contented and sure of himself. He will know what problems are likely to arise each day and will feel confident of overcoming them. After a year of this, our misfit from civilization can be pardoned for feeling that he has found the secret of living and has solved the problem of his own personality. The inner strength that he has

developed and the calm self-confidence that he has achieved, he feels, will never again desert him. Upon his return he will be able to look his friends and enemies in the eyes with tranquil dignity, and his newly-found sense of values will guide him through the cheap and tawdry maze which is modern civilization. Or so he thinks. Within a few weeks of his return he will fall back, hurt and bewildered, to the state in which he existed before he went south. What he has failed to realize is that he has only solved the problem of living in a simple community. Generally speaking, he is not one whit better equipped to cope with the complex society at home than he was when he left. It is not surprising that such a man, disillusioned and discouraged, will think nostalgically of his success and contentment with the expedition, and present himself on my doorstep some months later as an applicant for a further term down south. And I shall be glad to have him.

Nevertheless, I know few men who have not profited considerably, in some measure or other, from a year at an antarctic station. Most men, with the opportunity to commune in solitude with nature in her grandest guise, experience moments of spiritual insight and understanding, from which they derive some philosophical principles to guide them when they return to a normal existence. However, such guiding maxims become dim with time, and within a few months these men find themselves groping desperately to recapture the visions of truth which only recently were so clearly seen. I believe that the only way in which one can gain lasting benefit from any such "moment of truth" is to write down immediately the result of one's meditations and then, after returning home, read through once a month what one has written.

One thing which never fails to amaze me is the degree of frankness shown by applicants when being interviewed. Once settled in a chair with a cigarette, and lulled with small-talk until his nervousness subsides, the average man will blithely bring out all you want to know and keep on talking, often to his considerable disadvantage. However, I had one great exception to this generalization.

The man had applied as a cook from the R.A.A.F., and in every way seemed satisfactory except from the point of view of personality. He sat before me as stolid and as dumb as an ox. I tried every trick to trigger off some interest, some enthusiasm or some emotional reaction, but all I got was a blank poker face which said "Yes, Sir", "No, Sir". When he left the room, my fellow interviewer and I both reserved judgement on the same grounds, and reached for the telephone to check up on his R.A.A.F. unit. His commanding officer, after recommending him highly, concluded by saying: "Of course he is a bit full of animal spirits, you know, the life and soul of the party, full of fun and very popular. You'll just have to damp him down a bit now and then." Apparently this lad had developed a face and behaviour which he donned when speaking to any person in authority. We took him, and found he had a twinkling eye, a bubbling sense of fun and a capacity for boosting morale when things were toughest.

Conclusion.

I am afraid that, dwelling as I have done upon the problems of personal adjustment in Antarctica, I have given you a rather morbid idea of the atmosphere which exists at a southern station. If I have done so, it is because I have neglected to balance the debits on the psychological side with the heart-warming examples of generosity, humour, courage, unselfishness and true companionship which adorn any true account of life in a remote locality.

One year an American observer and I watched the return to Mawson of a field party which had been out on the plateau for more than three months. Preceded by a general air of excitement, the arrival of the travellers was greeted with a boisterous display of wit and profanity as the whole station turned out to greet them. The desire of the men to express their joy at the return of their comrades was cloaked beneath expressions of a crudely derogatory nature. Mail—the first for a year—was brought to the men; but they were too exhilarated with the intoxication of the moment, and pushed it aside for later consideration in the privacy of their cubicles. Seeing one man jubilantly escorted by two companions carrying his personal effects to his sleeping hut, I noticed that while he was absent his mates had washed and ironed his dirty linen and stacked it neatly on his bunk. Other men hustled about, offering small services in a motherly sort of way to the returned heroes, and a major celebration ensued. Altogether it was a most moving human experience, and the American observer later told me it had proved to be the highlight of his whole antarctic visit. It certainly was of mine.

Life at a remote station is life in a test tube; it is an environment in which men and their behaviour can be subjected to searching scrutiny. I feel that observations which are made and lessons which are learnt must have important implications for the more complicated urban environment in which you who are here tonight lead your daily lives. I feel also that it is in the field of human relations—not in the field of science—that man's greatest progress in the next few centuries must be made.

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TOXÆMIA OF PREGNANCY.[1]

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IN Uganda the native women live wholly and solely on a diet of bananas. They never eat any form of meat or fish, and they never have any milk. They gain only a few pounds in weight during pregnancy. These women very seldom develop toxæmia, but the occasional one who does suffers from the worst form of the disease, eclampsia.

In Fiji there are an Indian and a Fijian section of the population. Indian women, who eat fats, flour and prepared foods, often develop toxæmia of pregnancy. The Fijians, whose diet consists largely of fish and other protein, very seldom develop toxæmia.

In Germany during the first World War, when the women were undernourished owing to the British blockade, the eclampsia rate fell by 75%, only to return to its former level when hostilities ended.

The same observations were made in Holland during the second World War. The eclampsia rate had noticeably fallen during the period of food shortage, only to increase sharply after the "British Food Drop".

These facts serve only to stress our ignorance of a complex and difficult subject, which still ranks as one of the three numerically greatest causes of maternal deaths in New South Wales.

Table I shows the maternal mortality rate from toxæmia in New South Wales.

It is only by pooling the observations and research of the larger maternity hospitals in our own State and throughout the world that the final answer may be discovered.

When I was recently in Chicago, I noted that the central space carved in the stonework of the main entrance hall of the Chicago Lying-In Hospital is still vacant. It awaits the name of the person who first discovers the cause of eclampsia.

Suggested Definition.

By the use of densimetric and hydrometric studies, combined with animal experimentation, it has become possible to determine the human lean body mass—the fat-free body; and by the use of sodium^{22}, it has become possible to measure the sodium space and the amount of exchangeable sodium in this lean body mass. Research work carried out by McCartney, Pottinger and Harrod (1959)

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on September 17, 1959.

has shown that individuals with preeclampsia and eclampsia show a marked proportional increase in the sodium space and in the amount of exchangeable sodium in the fat-free body, both at term and at the end of the first post-partum week.

Since this change is found only in toxæmia, those workers suggest that its physico-chemical definition should be:

Marked proportional increase in the sodium space and in the amount of exchangeable sodium at term and at the end of the first post-partum week.

Sir Arthur Gemmell (1954) defined toxæmia as the presence of any two of the following three signs: (i) blood pressure above 140/90 mm. of mercury; (ii) presence of œdema; (iii) presence of albuminuria without local cause.

TABLE I.

Maternal Deaths in N.S.W. due to Pregnancy Toxæmia.

	Year.					
	1950	1951	1952	1953	1954	1955
Number of deaths	17	17	18	12	8	7
Rate per 1000 live births	0·24	0·24	0·24	0·16	0·11	0·09

After careful thought and with every respect to previous authors, I suggest that the clinical definition of mild toxæmia should be the presence of any two of the following four signs: (i) excessive weight gain; (ii) œdema; (iii) blood pressure over 140/90 mm. of mercury, but below 160/110 mm. of mercury; (iv) mild proteinuria. Severe toxæmia should be defined as the presence of any two of the following three signs: (i) marked œdema; (ii) blood pressure of 160/110 mm. of mercury or higher; (iii) marked proteinuria.

Ætiology.

Many theories of causation have been advanced, but I will mention only the one recently published by Browne (1958). In this paper it is stated that, owing to the influence of œstrogens formed by the placenta, the anterior lobe of the pituitary gland hypertrophies and produces an excess of corticotrophin. The placenta also produces corticotrophin. This double stimulus causes the adrenal cortex to form an excess of gluco-corticoids and mineralo-corticoids, which have an effect on carbohydrate metabolism and on sodium, chloride and water balance. The excess of these corticoids is controlled by a mono-amine oxidase formed by the placenta, which is itself, however, sensitive to oxygen tension. Decreased oxygen tension occurs whenever the placental blood flow is decreased, as it is known to be in patients who have a hypoplastic uterine blood supply which has not been corrected by a previous pregnancy.

When I was in Edinburgh recently, Professor Robert Kellar told me that he had not so far been able to demonstrate any difference in the amounts of oxidase present in the placentas of normal and of toxæmic patients.

I believe that, owing to the difficulty in maintaining an adequate blood supply to the placenta once the baby has been born, it may still be proved in the future that Browne's theory is correct. It certainly answers all the clinical conditions.

Predisposing Factors.

There is an increased incidence of toxæmia in the presence of the following conditions: previously existing hypertension; chronic nephritis; first pregnancy; any condition associated with a large placenta, such as uncontrolled diabetes mellitus, hydrops fœtalis, multiple pregnancy or hydatidiform mole; hydramnios, but only in association with a large placenta; excess initial weight; rapid or excess gain in weight during pregnancy; anæmia; stigmata of endocrine dysfunction.

Biochemical Aspects.

Water and sodium retention combined with increase in sodium space and extracellular fluid have been proved to be concomitants of normal pregnancy (Schloerb *et alii*, 1951). Dieckmann *et alii* (1955) have shown that in the presence of preeclampsia and eclampsia there is a marked increase in this process.

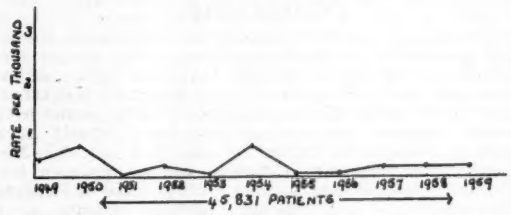

FIGURE I.

Eclampsia rate at the Women's Hospital, Crown Street, amongst booked patients over the past 10 years.

In view of reported improvement in the treatment of toxæmic patients by increased salt intake (Robinson, 1958), I would state that, in the light of our present knowledge of sodium retention, it would be advisable to continue to restrict salt in the treatment of the toxæmias. This is still being done in all the hospitals I visited during a recent trip through Britain and America.

No excess of aldosterone is shown in preeclampsia (Rinsler, 1957).

Cholesterol levels are increased during pregnancy, reaching a peak at the end of the second trimester. They are not further increased in toxæmia.

The total serum protein content is increased in pregnancy, owing to the increase in the blood volume, but there is a fall in concentration due mainly to a decrease in serum albumin. There is an increase in the globulin content with a consequent fall in the albumin-globulin ratio.

The lipids of the blood, which are substances entirely soluble in ether-alcohol, and which are represented by the glycerol esters of the higher fatty acids, the fatty acids, the steroids, the phospholipids and the cerebrosides, are bound to, or ride on, the globulins. The lipids bound to the beta fraction of the globulins are the beta lipoproteins, while those bound to the alpha fraction of the globulins are the alpha lipoproteins. Research workers under the

TABLE II.

Prematurity and Premature Perinatal Mortality Rates.

Year.	Premature Births.	Other Births.	Total Births.	Prematurity Rate. (Percentage.)[1]	Premature Perinatal Deaths.	Perinatal Death Rate (Percentage) Amongst Premature Births.	Overall Premature Perinatal Mortality Rate (Percentage).[2]
1946	287	3376	3663	7·8	84	29·3	2·29
1956	424	3698	4122	11·5	73	17·2	1·77

[1] Column 5, χ^2=14·04 for one degree of freedom.

[2] Column 8, χ^2= 2·68 for one degree of freedom.

direction of Professor R. Kellar at Edinburgh have shown that there is an increase in the beta-alpha lipoprotein ratio in pregnancy, with a still further increase in toxæmia, in hypertension complicated by pregnancy, and in preeclampsia superimposed on previously existing hypertension (Scandrett, 1959).

Treatment of Severe Toxæmia.

In the presence of established severe toxæmia there is no radical difference in the accepted methods of treatment being carried out today from those in use during the last five or six years. The essentials are bed rest, a low-calorie diet of low salt content, unrestricted oral fluid intake, the use of sedatives and modern diuretic agents, and sometimes the use of hypotensive agents, more particularly the rauwolfia alkaloids, apresoline and the veratrum alkaloids. If the patient's condition fails to improve, the pregnancy should be terminated by the most suitable obstetrically indicated procedure.

Clinical Aspects.

Even though our knowledge of the toxæmias is minimal, it is possible to reduce the incidence of the severer forms of toxæmia by an exceedingly thorough regime of antenatal care, based on clinical observations and instituted as early in the pregnancy as possible. This is proved by the results obtained by my colleagues and myself at the Women's Hospital, Crown Street, and at the Mater Misericordiæ Maternity Hospital, and by my own series of nearly 5000 patients without a single case of eclampsia. The eclampsia rate amongst booked patients at the Women's Hospital, Crown Street, is shown graphically in Figure I. That these results have not been achieved by inducing labour more prematurely than formerly is shown in Table II.

In the early weeks of pregnancy there is no variation in findings related to blood pressure or urine, the only variable factor being the weight; but those patients who are booked after the sixteenth week of pregnancy show a higher incidence of toxæmia than those who are booked before the sixteenth week. This is shown in Table III.

TABLE III.

The Importance of Early Booking.[1]

Time of Booking.	Total Number of Patients.	Number Not Affected.	Number with Pre-eclampsia.	Percentage of Total with Pre-eclampsia.
After sixteenth week	1408	1239	169	12%
Before sixteenth week	3042	2823	219	7·2%

[1] $\chi^2 = 27 \cdot 91$ for one degree of freedom; highly significant.

It therefore becomes apparent that it is necessary to reduce excess initial weight. This is shown in Table IV. Investigations at University College Hospital, London, by Williams (1957), also prove this observation. The greater the total weight gain, and therefore the more rapid the rate of gain during pregnancy, the higher is the incidence of toxæmia. This is shown in Table V. We therefore reduce excess original weight during the first few months of pregnancy, or even throughout the pregnancy, according to the amount of excess initial weight at the first antenatal consultation.

When patients are not originally overweight, the rate of gain during pregnancy is limited to 2 lb. in the first trimester and thereafter 3 to 4 lb. per month. Any excess gain over this amount is deducted from the allowance for the following month. Weight reduction, when indicated, is achieved by reducing the carbohydrate and fat content of the diet, but no reduction is made in the proteins or fluids. Saccharine may be substituted for sugar, and separated or skimmed milk, such as "Bon-lac", may be substituted for whole milk.

Since anæmia predisposes to toxæmia, presumably by causing diminished oxygen tension in the placenta, levels of hæmoglobin above 11 grammes per 100 ml. are maintained by a protein-rich diet throughout pregnancy, with extra ferrous iron in the second half.

TABLE IV.

Incidence of Toxæmia in Subjects with Preconceptional Obesity.[1]

Patients.	Number.	Patients with Toxæmia.[2]	Percentage.
Obese patients	31	8	25·8
Other patients	152	18	11·8
Patients with no weight data ..	3	0	—
Total	186	26	13·9

[1] Obesity is defined as +2 standard deviations or more above the mean for specific age and height.

[2] $P = 0 \cdot 039$.

Detection and Treatment of the Earliest Signs of Toxæmia.

Weight.

The earliest warning of toxæmia is usually an excessive gain in weight. In the early months this may be regarded as a predisposing factor, but in the later months it means retention of fluid. Corrective measures are to reduce the patient's diet, reduce or eliminate salt from the diet and advise two hours' rest each day. The patient must be examined weekly until this adverse sign has been controlled. Failure to respond indicates admission to hospital for stricter control.

TABLE V.

The Importance of Weight Control in Pregnancy.

Weight Increase. (Pounds.)	Primiparæ.			Multiparæ.		
	Normal Subjects.	Pre-eclamptics.	Percentage.[1]	Normal Subjects.	Pre-eclamptics.	Percentage.[2]
15–19	271	24	8·0	579	23	3·8
20–24	198	22	10	441	21	5·0
25–29	65	16	20	128	6	5·0
30–34	4	4	50	12	7	21

[1] Column 4, $\chi^2 = 21 \cdot 59$ for three degrees of freedom.

[2] Column 7, $\chi^2 = 45 \cdot 16$ for three degrees of freedom.

Œdema.

This sign, often first noticed by a tightness of the wedding ring, must be regarded as evidence of toxæmia until proved otherwise. It is corrected by reducing the patient's salt intake and advising increasing amounts of bed rest, up to complete rest for the more serious degrees of œdema. Usually two hours' rest after lunch each day is a sufficient amount. The patient must be examined weekly until the œdema has disappeared.

Blood Pressure.

Any reading over 130/80 mm. of mercury must be regarded as abnormal. In addition, a rise of 10 mm. of mercury in either the systolic or diastolic readings must be regarded as an indication to examine the patient again in one week. A further rise in this time calls for review in three days. A still further rise would indicate admission to hospital. When the pressure first starts to rise, lessening dietary salt intake and the enforcement of two hours' rest each day will often control this adverse sign.

The Urine.

There is an old saying that two pints of urine a day keeps eclampsia away. Diminution in daily urinary output indicates fluid retention and hence toxæmia. Albuminuria is usually the last sign of toxæmia, and if it is present in a catheter specimen of urine, the patient should be admitted to hospital.

Conclusion.

Finally, I would stress again that there is so much we do not know about toxæmia that I feel most diffident in suggesting any plan for its control; but I do most sincerely say that a measure of success has been achieved by the regime outlined in this paper, and I would humbly ask you to follow it until more successful measures have been evolved.

The Boston Lying-In Hospital under the direction of Dr. Duncan Reid, and the Chicago Lying-In Hospital under the direction of Dr. M. E. Davis, are very strict about correcting excess initial weight and controlling the rate of gain and total gain; but I regret to say that a survey at present being conducted by a *questionnaire* card about preeclampsia and eclampsia in Britain does not contain a space for observations of weight.

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EVERY DOCTOR A DIETITIAN.

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IT IS, I think, safe to state that medical practitioners, whether general or specialist, will be interested in any condition of the human body which is a departure from the "ordinary", although the oral or dental field is generally vacated in favour of the dental practitioner. This attitude of not wanting to poach on another's preserve is perhaps too facilely, although understandably, assumed.

Parents are almost certain to delay seeking the dentist's advice on a child's teeth until the child has teeth that need attention. Before that time only the medical practitioner, and those who act directly or indirectly under his instruction, are in a position to advise on measures for the maintenance of health of the pregnant woman and the fœtus, the mother and her young child; and let it be emphasized here that the human body is not healthy if the teeth or other oral structures are diseased.

Because of the medical practitioner's unique and, indeed, responsible relation to the health of the developing fœtus and child, this brief résumé of the general (and particularly the dental) health of the children at Hopewood House Children's Home, Bowral, is offered in the hope that it will appeal to him as a record of health (Asher, 1958), a state which, unfortunately, is recorded far less often than is disease.

The nation as a whole is so accustomed to dental decay that it has come to accept it as almost inevitable and, therefore, as more or less normal or "ordinary". No data are available to show what proportion of the population has a full set of sound teeth, but it must be very small indeed, because a recent survey (Barnard, 1956) has shown that in the age group 6 to 16 years only 1·5% of persons had teeth free from decay. Moreover, decay is non-healing and generally progressive, so that even that small percentage certainly diminishes with increasing age.

A roughly similar condition exists in other countries exhibiting the phenomena of modern western civilization. It is therefore little short of miraculous that this State of New South Wales, in which the above-mentioned survey was made, should have within its borders a group of children aged 9 to 16 years who are relatively free from dental decay. The obvious question is: "Why are they so different in this respect?" I believe that an answer can be given on the basis of the published reports of Lilienthal *et alii* (1953) and of Goldsworthy *et alii* (1958), and believe also that this answer has significance for the medical profession, although the detailed evidence for this cannot be set out here. Some of this evidence was presented by me before the Ninth Session of the Australasian Medical Congress (B.M.A.) in 1955.

The reports mentioned above appeared under the title "The Biology of the Children of Hopewood House, Bowral, N.S.W.", and described the environmental conditions as well as the dental and other aspects of the physical status of a group of children at a home conducted by the Youth Welfare Association of Australia (President, L. O. Bailey, Esq.). These reports cover a period of ten years (1947 to 1956 inclusive), during which each child has been carefully examined twice a year.

The Home and the Children.

The "Home" is a term used to designate both the location of the mother-house at Bowral and the general environment of the children, whether living in the mother-house or in one of the branch-houses, of which there are now five. Conditions of living in all locations are good and conform to an over-all pattern, of which the dietetic regime is the most outstanding single component. The children were admitted to the Home in early infancy and have remained a virtually intact group. Their ages ranged from 7 to 14 years at the end of the ten-year period (December 31, 1956), at which time the numbers of boys and of girls were the same, approximately 40 each.

General Physical Condition.

The general physical condition of the children has been determined over the last five years of the period under review, and records have been kept of growth, state of the nose and throat, occurrence of upper respiratory infections, psychosomatic disorders, presence of enlarged thyroid, defects of vision and cardiac condition. Conclusions drawn from these data are as follows: The health records of the children "have not been greatly dissimilar from the records of the child population of the State. More children than might be expected were in the lower centiles of the height and weight charts, the incidence of stammering, endemic goitre and cardiac murmurs was higher than has been recorded in either State-wide or local surveys. The amount of time lost from school with colds and minor illnesses was small and, as far as can be judged, smaller than for the child population of the State" (Goldsworthy *et alii*, 1958). It seems reasonable, therefore, to conclude that any superiority in the dental health of the children cannot be regarded as attributable to a general superiority of their physical state.

attributable to a general superiority of their physical state. This broad independence of general and dental health is a commonplace, and can be observed in both well-developed, well-nourished persons and under-developed, ill-nourished persons among Australians and many other populations.

Dental Conditions.

The general oral and dental condition of the children has been observed and recorded over the whole of the period under review (10 years).

Calculus (tartar) was relatively uncommon, but gingivitis (generally mild) was detected in 75% of the children, a figure similar to that recorded by Barnard in 1956 for State school children.

At the end of the ten-year period the dental decay experience was conspicuously less than in the general child population of the State of New South Wales, an observation in line with those made in the earlier years (1947 to 1952 inclusive). Thus State school-children had 10·7 (mean value) decayed, missing or filled permanent teeth per child at age 13 years, whereas the corresponding figure for Hopewood House children was 1·6. The proportion of children having no dental decay at age 13 years was 0·4% for the State school-children and 53% for Hopewood House children. Such a contrast is truly remarkable.

The relative freedom from dental decay manifested in these children made an orthodontic study of much more than ordinary interest, because practically no teeth had had to be extracted. As a result normal occlusion of the teeth was encountered much more frequently than among the general child population. When malocclusion was detected, the most frequent cause was thumb-sucking; but for these children the prognosis is good, because the condition can be expected to improve naturally when the habit is discontinued.

Bacteriology of Saliva.

Because experimental evidence indicates that bacteria are indispensable to the initiation and progress of the carious lesion, the bacteriology of the saliva was studied with special emphasis on the numbers of *Lactobacillus* species present. There was a statistically significant association between these lactobacillus counts and untreated (active) decay, although the closeness of the association tended to diminish with age. Differences in lactobacillus counts occurred even when decay experience (or freedom from it) was similar, and even in decay-free subjects there was a tendency for lactobacilli to appear in increasing numbers with advancing age.

Diet.

The most generally accepted view on the ætiology of dental decay is that it is a bacterial disease potentiated by dietary habits. With the exclusion of the fact that the children lived in "a home"[1] and not at home, the diet was the one item of the living conditions which was noticeably different from that of the general population. Over the years it has differed little from that described in the first report by Lilienthal *et alii* (1953). The principal features are: (*a*) the virtual absence of refined carbohydrate such as white flour and sugar and their products, (*b*) the extensive use of fresh, raw vegetables and fruits, (*c*) the inclusion of items such as nuts, dried fruits, vitamin preparations and fruit juices, (*d*) the availability of liberal supplies of raw milk and other dairy products, and (*e*) the regularity of meals and the abstention from all except organized and controlled between-meal eating. The details set out in Tables I and II of the fourth part of the recent report (Goldsworthy *et alii*, 1958) show clearly that the intake of nutrients was very satisfactory for all items, but that the caloric value was rather low on that occasion when the diet was investigated in 1956.

[1] There is evidence that the regulated life in an institution does of itself confer some slight benefit, in that the amount of decay is less.

Discussion.

With the foreknowledge in 1947 that there existed this group of children who were then quite free of decay, we seized the opportunity primarily to observe the condition of the teeth, but also to ascertain possible reasons for the children's decay-free state. It has often been held that indulgence in refined carbohydrates, especially sweets, cakes and the like, is one of the principal ætiological factors in dental decay, and various observers have published reports which lend substance to this claim. Our data can hardly be considered to derive from experiment; we merely used an opportunity offered by the circumstances obtaining in the Home, and did not in any way attempt to alter the established routine of the children's life. Hence it was not possible to use half their number as controls. However, it seemed legitimate to compare the Hopewood House group with a similar group in the general population. The contrast in the dental condition of the two groups has been outlined above and is very striking—more so, indeed, than the mere figures indicate.

One of the more recent studies aimed at elucidating the relation of refined carbohydrates to decay is the well-known Vipeholm project reported by Gustafson *et alii* (1954); the results point clearly to the deleterious influence of sticky, adhesive concoctions of sugar. In neither heterogeneous group, Hopewood or Vipeholm, is there any likelihood that immunity to decay on the basis of heredity constituted a complicating factor, so that we can state unequivocally that abstention from refined carbohydrates is significantly associated with the maintenance of decay-free teeth. It will be objected that white flour and sugar and their products are necessary, if not dietetically, then at least economically, because these items are the cheapest components of our food. However, the wealth of this favoured nation, if wisely used, could easily provide the alternative types of diet. Concerning the dietetic necessity of consuming refined carbohydrate in quantity, we might well reflect upon the conditions of life before and after the Industrial Revolution, as well as upon the history of food technology. Despite the laity's cherished belief that calories (or "energy") can be obtained only from sugary food, there is no evidence that refined carbohydrates are essential to good health.

Training in dietary habits must begin with the child; but when the child grows old enough to visit the dentist, his dietetic habits are already well established, and it is often too difficult and too late to try to correct them. The medical practitioner, however, is in a strategic position to advise on diet; his advice, given to the pregnant woman or to the young mother while her child is still an infant, would go a long way towards establishing sound dietetic practices among the population—practices conducive to total health, which obviously includes dental health. Undoubtedly he has an obligation to assist in this, and an appeal for that assistance is made here and now.

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ACTIVE IMMOBILIZATION FOR RECURRENT OR CHRONIC POLYARTHRITIS.[1]

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RHEUMATOID ARTHRITIS is usually treated with the hope of preventing deformity and keeping the patient at work. A new specialty—rheumatology—has developed lately to keep these ends in view. The ideal rheumatologist will be a physician with a wide knowledge of rheumatic inflammation and its effects on body and mind. He requires knowledge of joints and muscles, together with the conservative outlook of the internist. He himself is in deadly fear of two things: (i) that he will not be able to use his hands; (ii) that he will not be able to walk. He can be assured that by active immobilization both these functions can be preserved.

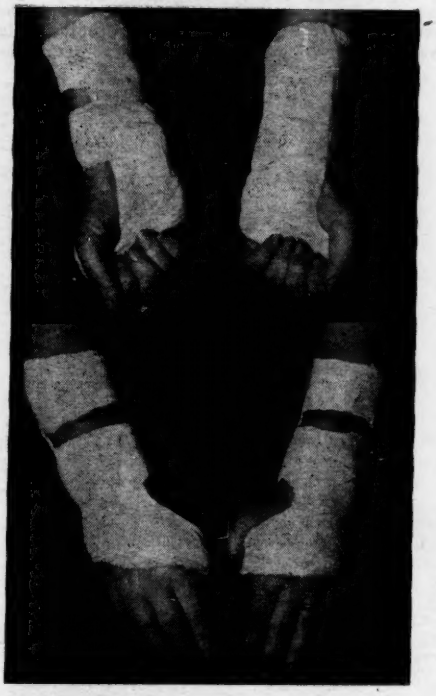

FIGURE I.

Plaster cast which immobilizes wrist but allows hand to be closed and forearm to be rotated. Cast can be used for part-time wear when the two transverse plaster bands are cut away.

should know the value of orthopædic treatment, and he should be capable of deciding what operative interference is necessary. He should realize that anxiety is part of the disease, and with an optimistic outlook he should keep high the patient's confidence.

In the past ten years I have been studying more and more closely the effects of active immobilization on arthritic joints. With a few joints (hip, ankle) I have not been able to evolve a useful technique; but for nearly all the others satisfactory methods of splinting have been evolved (Kelly, 1959). The natural history of rheumatoid arthritis is profoundly modified in most patients who have had the benefit of active immobilization (Swanson, 1956; Taylor, 1956).

Natural History of the Disease.

Insight comes only from a wide knowledge of the natural history of chronic polyarthritis. Every patient

[1] A lecture, illustrated by a 30 mm. film, delivered on November 7, 1958, at Williamstown Hospital.

Even in the untreated patient there are many features which favour recovery, and a persevering and skilful physician should be able to take advantage of them. From patient to patient, the disease shows every possible variation in rate of spread, intensity of inflammation and number of joints involved. It is not inevitably progressive either in the patient or in the individual joints. Polyarthritis often subsides spontaneously, or during pregnancy or jaundice, or after an operation. While it is spreading to new joints, inflammation in others which may have been present for years may subside unaccountably.

FIGURE II.

Leather supports which allow free use of hands and forearms.

If the spread was fortuitous, new joints would be involved unpredictably. But each inflamed joint is a starting point for further spread—most commonly to its neighbour or to the symmetrically opposite joint (Kelly, 1951, 1952, 1953). It is guided by an unformulated law which has not yet been recognized by the pathologists.

Rheumatoid arthritis, though a chronic disease, is characterized by acutely painful or critical attacks, which often subside in one joint as they light up in another; the inflammation of synovial membrane resembles the effects of injury. The swelling, which is greater in joints with large synovial sacs, causes pain, spasm and wasting of muscles. The critical attack may leave a joint relatively unharmed, or deformed and disorganized; the final result will always be good if the joint is immobilized.

Each joint has a characteristic appearance, though the pathology is the same. Hydrarthrosis is characteristic of the knee, because it has a large synovial cavity. We speak of periarthritis of the shoulder, because the periarthros (subacromial bursa) is the most accessible part; but the synovial membrane of the joint is frequently involved. In arthritis of the hip, a small weight-bearing head and neck show radiological change which some call osteoarthritis.

A critical attack of the disease, if not treated by immobilization, has different late effects on each joint.

The shoulder and elbow usually make a good recovery. The knee often flexes, because the patient sits with it bent; the quadriceps wastes away. The wrists droop, especially in bed at night; the fingers may become deviated secondarily if wrist-drop occurs. If the hand cannot be used, the shoulder and elbow may become fixed. Walking with bent knees extends ankles and flexes hips.

A patient does not take to bed or wheelchair if he can straighten his knee. The elbow or shoulder seldom becomes fixed if the patient can use his fingers; the fingers depend on the wrist. The key to the natural history of arthritis is the critical attack on knee and wrist. If deformities are prevented, the acute attacks on the knees and the wrists usually pass and leave no disability; but the wasted muscles continue to threaten deformity even when the arthritis has been suppressed by immobilization or phenylbutazone. Late deformities in rheumatoid arthritis—as in poliomyelitis—are caused by weakness of muscles.

Active Immobilization.

Rheumatoid arthritis is a disease of movement. The mysterious pathological agent affects the synovial membranes so that they react to movement with swelling, hypersecretion and pain. Fixation would prevent this; inflammation already present in a joint subsides rapidly

FIGURE III.

Left: subacromial bursitis treated by immobilization of shoulder joint; right: range of joint in same patient three weeks later.

when it is immobilized. The reaction in the joint is non-specific and resembles the effects of injury. There is nothing specifically deforming or ankylosing about the rheumatic inflammation; deformity comes from the deliberate maintenance of a bad posture. A joint in a critical attack should be immobilized; but muscles waste in plaster, and unaffected joints which are not moved become stiff. While immobilizing the painful joints, therefore, we should insist on use of the limb and on exercise for weakened muscles.

The Wrist.

The greater proportion of the pain of arthritis is in the hand, and nearly all the pain in the hand comes from the wrist. We often forget this when we see dropped wrists and atrophic or swollen fingers. The patient may remember only the pain in the fingers, and has to be questioned for the information that the wrists had been sore. Both the acute attack and the subsequent deformity may be masked. Inability to extend the wrist—the commonest deformity in rheumatoid arthritis—is less obvious than the extended fingers and the hyperflexed or deviated metacarpo-phalangeal joints. The patient feverishly tries to bend the proximal interphalangeal joints, but succeeds only in further damaging the metacarpal joints. Full flexion of the proximal interphalangeal joints—a range of 135°—will never be recovered while the wrist cannot be extended; extension of the wrist is necessary before the hand can be properly closed.

Immobilization of the inflamed wrist in plaster of Paris immediately stops the pain (Figure I). The inflammation subsides forthwith, and within a few days the fingers can be flexed. The wrist should be extended, and the fingers and thumb should be left free. The styloid processes and the subcutaneous border of the ulna should be padded, and the hand should be used. If the wrist cannot be extended, it may be forced into extension under anæsthesia and fixed for four weeks; the fingers should be used as much as possible.

One or two arthritic wrists cause not only pain but toxæmia. When they have been immobilized, the patient soon feels better, and other joints improve. For five weeks the general health continues to improve. When the casts are removed, leather supports should be worn for decreasing periods in the daytime, but at night for months or years (Figure II). Every arthritic wrist,

FIGURE IV.

Cylindrical plaster cast, which goes 9 in. above and 9 in. below knee joint. The patient walks immediately on the straightened leg. Wrists also immobilized in plaster.

even if not acutely inflamed, should be supported in this way. The danger of deformity persists while the extensors are weak; support of the wrist during sleep is obligatory.

Other Joints of the Upper Limb.

Arthritis of finger joints does not cause much disability if the wrists are normal, though acute attacks may be inconvenient. Immobilization in plaster casts is extremely valuable. The metacarpo-phalangeal joints seldom become deviated unless the wrist has dropped. Finger posture depends on a delicate balance of muscles, and a finger which cannot be flexed is at the mercy of other forces—which include gravity. When the little finger has deviated, it fails to support the ring finger, which also may go sideways, followed by the middle finger. The pull of the long tendons further deviates fingers which have become unbalanced.

Acute arthritis of elbow and shoulder is common, but if the hand can be used it usually subsides without much disability. Immobilization is extremely valuable;

recent shoulder pain is relieved when the humerus is bound to the chest for a few days; this is extended to three weeks for pain of longer duration. Full range usually returns soon, and the restoration of movements should not be hurried. Immobilization does not cause a frozen shoulder; it prevents it (Figure III).

FIGURE V.
A patient with two arthritic knees wearing two calipers.

An acutely arthritic elbow should be fixed at 90° and the hand should be used. After three weeks a sling is worn for two weeks; movements should be regained gradually by cautious increases, and should never be forced.

FIGURE VI.
Range of flexion in knee eight weeks after removal of plaster cast. Same patient as in Figure IV. Complete remission.

The Knee.

A critical attack on the knee makes the patient hold it flexed while he sits or lies in extreme pain. The quadriceps rapidly wastes, and soon he cannot straighten his leg. Then the other knee becomes flexed. Walking on bent knees wears away the lateral condyles of tibia and femur and causes abduction and torsion.

A painful, swollen knee should be straightened immediately and fixed in a cylindrical plaster cast which extends nine inches above and below the knee (Figure IV), or in a band caliper which allows the limb to bear weight (Figure V). The patient should walk on it; the muscles, cartilage and ligaments all need to bear weight. Synovial inflammation is perpetuated by movement, but not by weight-bearing. A knee which cannot be extended should be corrected under anæsthesia; a plaster cast is applied and the patient walks after 48 hours. Two inflamed knees should be treated at once with casts or calipers, and the patient uses crutches. Relief of pain is dramatic, and the general health improves. Persistent quadriceps drill is absolutely necessary.

After four weeks the caliper is left off for four hours a day, then for gradually lengthening periods. For persistent hydrarthrosis or weakness of the quadriceps it may be worn for a few hours every day or night, for years if necessary. The caliper should be fixed on again whenever acute inflammation recurs.

FIGURE VII.
Skiagram of knee which was immobilized six years ago. Ankylosis in extension.

If the cartilage is intact, the knees will soon regain a good range (Figure VI). Movements should not be actively sought; passive movements are forbidden. If the joint is disorganized, a stable ankylosis in extension is an excellent result (Figures VII and VIII). The patient is very grateful for relief of pain. Old and severe deformities cannot be fully corrected at the first operation. If the leg is fixed after the deformity has been partially corrected on the first day, it may more easily be extended a few days later.

Rest in bed should be avoided, because it means weakened muscles, flabby and relaxed ligaments, flexed knees and grossly deformed feet. A healthy man kept in bed for 15 weeks loses 15 grammes of calcium and 54 grammes of nitrogen, and they are not restored for six weeks. Reyher (1874) showed that cartilage needed to be rubbed against other cartilage to preserve itself. In osteoarthritis of the hip, it is not the weight-bearing cartilage which is first diseased, but the marginal cartilage (Harrison and others, 1953).

Other Joints of the Leg.

Arthritis of tarsal or metatarsal joints often becomes a serious problem when a patient goes to bed with a

painful wrist, shoulder or knee. Then the feet become so sore that he cannot walk for months or years. Arthritis of these joints which develops while the patient is walking around seldom causes serious disability; crippling is more likely to occur if the patient goes to bed. Painful metatarso-phalangeal joints can be rendered painless with a cast which encircles the front half of the foot, and the patient should walk in an old shoe with the toe cut out. When the joint has been immobilized, immediately he will be able to stamp his previously painful foot on the floor. The stimulus to joint pain is movement, not pressure.

Tarsal joints can be immobilized in a plaster slipper which leaves the ankle free. The differential diagnosis from arthritis of the ankle is important. Pain on walking will be much diminished, and the patient will be able to move around in carpet slippers with their uppers suitably cut.

FIGURE VIII.
Same patient walking with straight knee.

Two Mistaken Beliefs.

Some arthritic patients are made to suffer a great deal from two mistaken beliefs: (i) the belief that they should put their painful joints through their full range every day; (ii) the belief that their joints will ankylose if they are completely immobilized.

Physiotherapists who try to secure a full range of movement can do nothing but harm. There is an increasing fashion for manipulations and passive movements which, a moment's thought should show, will accelerate rather than prevent ankylosis and deformity. Immobilization for three weeks never causes ankylosis if the cartilage is intact. When the cartilage has gone, ankylosis in a good position is a desirable result.

Reversal of Spread of Arthritis with Active Immobilization.

When the joint which is most severely involved is put at rest, widespread pains frequently become quiescent. I have recently described patients whose polyarthritis went into remission immediately after both wrists had been immobilized (Kelly, 1957). Similarly, when a painful knee is fixed and the patient walks on it, pain in the hip or ankle, or even the other knee or the upper limb may disappear. Recently the two following cases were encountered: (i) pain in both wrists subsided as soon as the acutely painful right shoulder had been fixed to the side; (ii) pain in the right elbow vanished when the acutely painful left shoulder had been fixed.

Phenylbutazone.

Phenylbutazone is a valuable drug which has specific antirheumatic properties. Frequently it is only partially successful when the hands or the knees are acutely painful and swollen. However, immobilization is supplementary to phenylbutazone, and phenylbutazone is supplementary to immobilization. Rapid remissions are frequently obtained with a combination of the two methods. The drug can be given in small doses (300 or 400 mg.) and for only four or five days out of every seven; its effects are invariably enhanced after a brief withdrawal. It should not, of course, be given to aged people or those with cardiac or gastro-intestinal disease.

Summary.

Active immobilization enables the arthritic patient, while he is being treated, to walk and to use his hands.

Flexion deformities of knees and wrists can be prevented, and the range of movement is soon restored.

Though other joints are less important, the methods are applicable to them also.

Frequently a reversal of rheumatic spread is observed, leading to a complete remission.

Active immobilization and phenylbutazone are supplementary to each other.

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THE EFFECT OF HUMAN ALBUMIN GIVEN INTRAVENOUSLY UPON BLOOD AMMONIA LEVELS IN PATIENTS WITH AND WITHOUT LIVER DISEASE.[1]

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THE therapeutic role of proteins in hepatic coma and chronic hepatic insufficiency has changed radically in recent years. The clinical relation of alcoholism and malnutrition to cirrhosis, the experimental production of dietary cirrhosis by Himsworth (1950), and the occurrence of hypoalbuminæmia in cirrhotic patients led to a régime of forced protein feeding in chronic liver disease and

[1] Portion of this material was presented to a meeting of the Western Australian Fellows and Members of The Royal Australasian College of Physicians, April, 1959.

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hepatic coma. More recently it has been realized that, in patients with portal-systemic anastomoses, protein administration may precipitate episodic stupor and neurological abnormalities, and that these are associated with, and probably in part due to, increased blood ammonia levels (Phillips *et alii*, 1952; McDermott and Adams, 1954; McDermott, 1958). There is considerable evidence that this rise in blood ammonia level is due to bacterial breakdown of protein within the large bowel, and the subsequent absorption of ammonia into the portal circulation. In the presence of severe hepatic damage, or of portal-systemic anastomoses, this ammonia is not detoxified by the liver, but reaches the systemic circulation, with resultant encephalopathy (Sherlock *et alii*, 1954). At present, therefore, management of hepatic coma includes severe protein restriction, intestinal sterilization with antibiotics such as neomycin, and administration of substances such as glutamic acid (Walshe, 1955) or arginine, which bind ammonia. This type of therapy has greatly improved the prognosis of hepatic coma.

Severe protein restriction, however, carries its own hazards. Hypoalbuminæmia is frequent in the patient with cirrhosis, and the resultant lowering of colloid osmotic pressure plays an important part in the formation of ascites and peripheral œdema. Protein restriction enhances this and leads to increased fluid retention. Attempts have been made to escape this dilemma in various ways, including protein administration with antibiotic cover (Fast *et alii*, 1958), and the use of amino-acid mixtures and protein hydrolysates.

In 1947, Lewis, Taylor and Davidson showed that, in advanced alcoholic cirrhosis, there was a slight diminution of tolerance to casein hydrolysate given intravenously, and that it was metabolized more slowly than in normal subjects, although they did not measure blood ammonia levels at this time. Later, Webster and Davidson (1957) found that rapid infusions of several different types of protein hydrolysate produced significant rises in the blood ammonia level and typical neurological signs. With slower infusions (1 ml. per minute) the rise was delayed and of lesser magnitude. It was diminished by the addition of L-glycine or DL-alanine to the hydrolysates. A similar protective effect of arginine has been found by Fahey (1957) and by Harper and Owsley (1958). In general, protein hydrolysates are associated with clinical toxicity and increases in blood ammonia level, and are metabolized too slowly to be of use in the control of osmotic œdema in acute and chronic hepatic insufficiency.

Intravenous injection of human albumin does not share these disadvantages. It is not toxic, and produces an immediate rise in plasma protein concentration, with resultant diuresis (Thorn *et alii*, 1946). Nor is it more rapidly degraded in the cirrhotic than in the normal subject (Sterling, 1951; Volwiler *et alii*, 1955). There is also some evidence that albumin solutions given intravenously increase hepatic blood flow (Bradley, 1951). However, the relation of albumin infusion to blood ammonia levels has been little studied, and the present work was undertaken to supply this information.

Clinical and Laboratory Methods.

Observations have been made upon 21 patients. Nine of these (five males and four females, average age 62·3 years) presented no clinical or laboratory evidence of liver disease or portal-systemic anastomoses, and serve as control cases. These patients were receiving albumin solution intravenously as part of the management of the nephrotic syndrome or of intestinal malabsorption. They are referred to as Group I. Group II comprised five patients (two males and three females, average age 59·6 years) with chronic liver disease, but without evidence of portal-systemic anastomoses as gauged by gastro-intestinal bleeding, splenomegaly, dilated superficial abdominal veins and radiological examination when this was performed. Group III comprised seven patients (three males and four females, average age 56·8 years) with definite evidence of portal-systemic anastomoses. In five cases these were associated with portal cirrhosis, and in two with angiomatous malformation of the portal vein. One patient in Group III was tested twice, so that a total of 22 series of observations has been made.

Tolerance to intravenous albumin infusion with respect to blood ammonia levels was tested as follows:

The patient was at rest in bed and taking a light ward diet before and during the test. Preliminary observations showed that these conditions did not cause any consistent change in blood ammonia level during the period of observation. An intravenous infusion of 100 ml. of concentrated human albumin was begun at 10.0 a.m. and continued until 2.0 p.m., when the drip apparatus was removed. Blood specimens were taken at 10.0 a.m. and again two, four and six hours later for estimation of ammonia content. From the first specimen, estimations were also made by standard methods of serum albumin and globulin content, bilirubin content, alkaline phosphatase and glutamic-oxaloacetic transaminase (SGOT) levels, and of blood urea content and thymol turbidity. Ammonia level estimations were performed by a modification of the method of Seligson and Seligson (1951). The normal mean was 80 μg. per 100 ml., and the normal range 50 to 120 μg. per 100 ml. SGOT level estimations were made by the method of Caboud *et alii* (1956).

The albumin solution used was "salt-poor" concentrated normal human serum albumin prepared by the Commonwealth Serum Laboratories, Melbourne. It contains 25 grammes of albumin per 100 ml., so that over a four-hour period of infusion, the rate of fluid administration was 0·4 ml. per minute, and the rate of albumin infusion was 0·1 gramme per minute. The solution was electrophoretically pure, and its ammonia nitrogen content was 300 μg. per 100 ml.

Results.

No patient showed any evidence of toxicity or hepatic precoma during or immediately after albumin infusion.

Detailed biochemical data are presented in Table I and Figures I and II. It is evident that there is considerable variation from patient to patient, but certain general trends are apparent.

TABLE I.

Effect of Intravenous Albumin Infusion, 25 Grammes Given Between 0 and 4 Hours, upon Blood Ammonia Levels in Patients Without and With Cirrhosis and Portal-Systemic Anastomoses.

Group.	Blood Ammonia Nitrogen Levels (Microgrammes per ml.) at:			
	0	2 Hours.	4 Hours.	6 Hours.
I.				
Mean	55	82	85	65
Range	30 to 105	50 to 140	40 to 160	35 to 100
S.D.	28	30	48	26
II.				
Mean	72	89	91	69
Range	50 to 100	30 to 140	70 to 130	50 to 80
S.D.	20	42	25	13
III.				
Mean	84	104	103	105
Range	60 to 150	70 to 170	70 to 160	80 to 160
S.D.	33	34	29	30

In Group I albumin infusion resulted in a slight rise in mean blood ammonia levels at two and four hours after infusion was commenced, with a rapid return towards the initial value at six hours. The initial level in Group II was a little higher than in Group I, but the shape of the curve was the same, and the same return to the initial level was seen at six hours. The behaviour of the blood ammonia levels in Group III, the patients with portal-systemic anastomoses, differed from the other groups. These patients had the highest blood ammonia levels at all stages, and the variation from case to case was also greatest in this group. Nor was there any change between the levels obtained four and six hours after the beginning of the infusion, and the return towards the initial levels which followed cessation of the infusion in Groups I and II was not observed in Group III.

No significant correlation between ammonia levels and the other factors investigated was observed. Impaired renal function, elevation of the alkaline phosphatase or serum bilirubin levels and positive responses to flocculation tests did not affect the changes in blood ammonia levels after albumin infusion. It was noted that patients with higher initial serum albumin levels had smoother ammonia level curves, and those with increased SGOT levels had higher maximum ammonia levels, but these effects were not great.

Discussion.

Although small, these rises in blood ammonia levels were greater than would be expected from the ammonia content of the albumin solution. This contained 300 μg. of ammonia nitrogen per 100 ml., so that with an infusion of 100 ml., and with an assumed extracellular fluid volume of 15 litres, the expected rise in blood ammonia

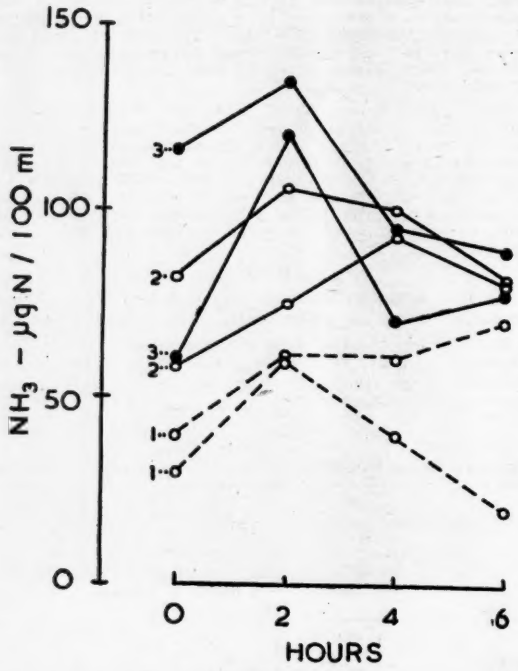

FIGURE I.

Typical blood ammonia levels after infusion of 25 grammes of albumin between 0 and 4 hours. The small figures at the left of each curve represent the clinical Groups I, II and III, into which the patients were divided.

level would be negligible. The measured rise must therefore have come from albumin catabolism, and it is possible that this may have taken place after excretion of albumin into the gut.

The persistence of increased blood ammonia levels in patients in Group III also merits comment. This may mean that ammonia formed elsewhere is being presented to the liver more slowly in the presence of portal systemic anastomoses, so that hepatic binding of ammonia formed elsewhere is delayed. There is, however, considerable evidence that muscle tissue is also able to bind ammonia (Bessman and Bradley, 1955), so that this cannot be the sole explanation.

In any case, the present results suggest strongly that slow, continuous infusions of human albumin may safely be used to raise colloid osmotic pressure in patients with chronic liver disease and portal-systemic anastomoses, without increasing the blood ammonia content to toxic levels. Clinical experience confirms this, and brief data are presented from an illustrative case.

Report of a Case.

A female patient, aged 65 years, was admitted to the Royal Perth Hospital because of symptoms of portal-systemic encephalopathy. For two years she had had recurrent jaundice with intermittent vomiting. When first examined, she was deeply jaundiced and comatose, with fœtor hepaticus, hepatosplenomegaly, ascites and generalized

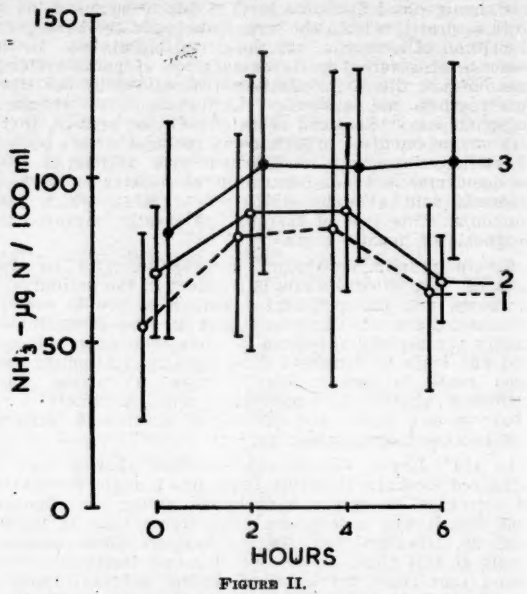

FIGURE II.

Mean curves of blood ammonia levels in the three groups of patients. The vertical bars about each mean point represent standard deviations.

œdema. The diagnosis of hepatic cirrhosis with hepatic coma was confirmed by the laboratory investigations, the results of which were as follows: serum bilirubin level, 11·9 mg. per 100 ml.; serum alkaline phosphatase content, 12·3 King-Armstrong units; SGOT content, 157 units; flocculation tests, strongly positive results; serum albumin level, 2·1 grammes per 100 ml.; serum globulin level, 4·8 grammes per 100 ml.; blood ammonia level, 237 μg. of ammonia nitrogen per 100 ml.; blood urea level, 26 mg. per 100 ml.

TABLE II.

The Effect of Human Albumin Infusion upon Serum Protein and Blood Ammonia Levels in a Female Patient, Aged 65 Years, under Treatment for Hepatic Coma.

Day.	Albumin Infusion. (Grammes per Day.)	Serum Albumin Level. (Grammes per 100 Millilitres.)	Serum Globulin Level. (Grammes per 100 Millilitres.)	Blood Ammonia Level. (mg. of Ammonia Nitrogen per 100 ml.)
1	25	2·1	4·8	237
2	150	3·5	2·8	146
3	75	3·9	2·4	—
4	—	3·4	3·5	137

Treatment was begun with neomycin (12 grammes per day), prednisone (60 mg. per day) and an intragastric drip administration of 20% glucose solution at the rate of four litres per day, as well as supportive measures. However, despite complete salt restriction and the use of diuretics, the œdema persisted, so that a continuous intravenous infusion of concentrated albumin was begun at a rate of 25 grammes per four hours, for a total of 250 grammes. Biochemical data during this period are shown in Table II. During the period of infusion the blood ammonia level fell,

and there was a substantial rise in serum albumin level and concomitant fall in serum globulin level, with diuresis. The patient's recovery from this episode was uneventful. She died some weeks later from a massive gastro-intestinal hæmorrhage. Autopsy showed advanced portal cirrhosis with portal-systemic anastomoses.

Summary.

The effect of an intravenous infusion of 25 grammes of human albumin in four hours upon the blood ammonia level has been investigated in nine patients without liver disease, in five with cirrhosis, but without portal-systemic anastomoses, and in seven with portal-systemic anastomoses.

In each group the ammonia level rose slightly, but not to heights producing encephalopathy. The rise was greater and the return to normal slower in the patients with portal-systemic anastomoses.

It is suggested that a slow, continuous intravenous infusion of human albumin is a safe measure of raising the low colloid osmotic pressure due to hypoalbuminæmia in chronic liver disease, and its use in the treatment of a patient with hepatic coma and anasarca is described briefly.

Acknowledgements.

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STONE-FISH POISONING.

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IN 1958, S. Wiener published a paper on the treatment of stone-fish poisoning. Prior to this only symptomatic treatment was available, based on ideas similar to the rather inadequate first aid given for venomous snake bites before the introduction of antivenenes.

Stone fish (*Synanceja trachynis*) abound in the coastal waters of the Territory of Papua and New Guinea. They inhabit the coral reefs and are provided by nature with a most effective camouflage, making them practically invisible to the best of eyes. Along the back of the stone fish are about 13 stout spines. The fish can reach a length of about one foot.

When the fish is stepped on, one or more spikes may enter and inject venom into the body tissues. The severity of the poisoning appears to be in direct proportion to the amount of venom so absorbed and to the time that has elapsed between the injury and the commencement of treatment. The most serious sequelæ as seen in the Territory of Papua and New Guinea were the development of festering sloughs and tissue necrosis and the long period of hospital treatment required to restore good health and well-being in those so afflicted.

Before the introduction of stone-fish antivenene by the Commonwealth Serum Laboratores in Melbourne, emetine hydrochloride was used by the writer and 10 patients were so treated (Wiener, 1958). All belonged to the indigenous races of the Territory and were inhabitants of the Trobriand Islands. They were all young adults aged between 15 and 25 years, and in good physical health. Four were examined 15 minutes after they had been stung, whilst six were examined from 30 to 60 minutes after the accident. Pain was felt almost instantaneously; it was excruciating, and was felt in the points of entry, (invariably on the sole of the foot), radiating towards the groin. Œdema of the foot was marked on the patients' admission to hospital. Shock varied in degree from slight to severe.

Emetine hydrochloride solution (1 grain in 1 ml.), in a dose of 0·5 to 1·0 ml., was injected into the points of entry. The patients treated 15 minutes after the accident reported that pain had practically ceased five to 10 minutes after the injection had been given. In the other six cases, pain persisted to a great extent, and was controlled with a quarter of a grain of morphine given intramuscularly. Œdema persisted for two to four days, after which all patients were discharged from hospital as cured.

Follow-up investigations were made two weeks after discharge from hospital. Three of those seen treated from 30 to 60 minutes after the accident reported that at times they felt nauseated, and generally they complained of lassitude, though they were quite capable of carrying out their normal gardening and fishing activities. The other seven were in excellent health.

Reports of Cases.

Two other patients with stone-fish poisoning were treated with a combination of stone-fish antivenene (which was obtained from the Commonwealth Serum Labora-

tories) and emetine hydrochloride. Their histories are as follows.

CASE I.—The patient was stung by a stone fish whilst fishing in shallow water, off the Losuia Government Station, Trobriand Islands. He is a young man, healthy, and aged about 21 years. He was carried into the native hospital about 15 minutes after the accident. He complained of excruciating pain in his left foot, and was unable to lie still; he was crying and screaming, although it is the custom of these people not to show pain to any extent.

On examination of the patient, it was found that five spikes had entered the sole of his left foot—this in spite of a very thick foot sole, as he has never worn shoes. The points of entry were about 1 cm. apart and easily made out, as a very small amount of blood had extravasated. The whole of his foot was œdematous and very tender to touch. His temperature was 99·2° F., his pulse rate was 100 per minute, and his blood pressure was 95/60 mm. of mercury. Shock was present.

Immediately after his admission to hospital, 2 ml. of stone-fish antivenene were given by intramuscular injection. Seven minutes later the patient reported lessening of pain. Ten minutes after the antivenene, one quarter of a grain of emetine hydrochloride was injected into each point of entry. The pain ceased almost immediately. Œdema of the foot persisted for another two days, after which the patient was discharged from hospital as cured. Fourteen days later, the patient was fit and healthy.

CASE II.—The patient is a healthy male, aged about 20 years. He was brought to the hospital about 20 minutes after he had been stung by a stone fish. He complained of excruciating pain in the left foot, which was œdematous. It was found that three spikes had entered the sole of his foot; one of these was still in the point of entry. His temperature was 98·8° F., his pulse rate was 120 per minute and his blood pressure was 90/50 mm. of mercury.

Two millilitres of stone-fish antivenene were given by intramuscular injection, followed five minutes later by the injection of one quarter of a grain of emetine into each point of entry. The pain ceased almost immediately, and the patient was discharged from hospital two days later. Fourteen days later, he was found to be enjoying the best of health.

Conclusions.

It is considered that the use of stone-fish antivenene is the treatment of choice in poisoning with *S. trachynis*. The severe pain can be relieved with emetine hydrochloride.

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Reports of Cases.

CORNEAL CHANGES DURING THERAPY WITH AN ANTIMALARIAL DRUG, "CAMOQUIN".

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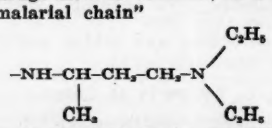
DURING the past decade the antimalarial series of drugs—mepacrine, chloroquine, "Camoquin", etc.—have been used extensively for a variety of conditions. They have been of great therapeutic value in the chronic rheumatic diseases and various skin conditions, notably lupus erythematosus and the solar dermatoses.

These three drugs have in common, as a side chain, the so-called "antimalarial chain"



A chlorine atom is attached to the quinoline or acridine nucleus in the same position relative to the nitrogen atom in each case. Chemically these drugs are very closely allied. It is not surprising that their effects on the living organism run a close parallel.

Many side-effects have now been reported, some of them ocular. The ocular complications, although rare, are very troublesome and disturbing, and are of two types—corneal changes and disturbances of accommodation.

Mepacrine was first implicated in 1946, when Reese, and Chamberlain and Boles, reported corneal œdema in American airmen taking suppressive doses. The subjective visual disturbance was of visual blurring and haloes round lights. The condition cleared up on the cessation of the drug.

Ida Mann (1947) reported several cases of visual disturbance, consisting of haloes, in workers engaged in the manufacture of mepacrine. In these cases a fine deposit of yellowish dots was seen in the corneal epithelium.

As "Chloroquine" became more used, there were more reports of disturbances of accommodation in patients receiving high doses (Findlay, 1951; Rehfuss and Price, 1951; Shookhoff, 1952; Patel, 1953; and others). Then Hobbs and Calnan (1958) reported a series of 30 cases in which corneal epithelial changes occurred on chloroquine therapy. In June, 1958, L. L. Calkins reported a further seven cases in which similar corneal changes were observed. In both these series the subjective symptoms were, in varying degrees, "blurring of vision" and "haloes round lights", and slit-lamp microscopic examination showed fine epithelial deposits in various patterns, but characteristically curvilinear and "whorl-like."

Cessation of chloroquine in all cases resulted in remission of the symptoms and eventual clearing up of the corneal deposits. In the one case of Calkins' in which the drug was not discontinued, the symptoms became worse, and visual acuity, which in no case had been affected markedly, was beginning to drop.

The present case is of a similar corneal condition, caused by "Camoquin".

Clinical Record.

Mr. A., aged 38 years, has been under treatment for a discoid lupus erythematosus of the forehead since December, 1957. He was given chloroquine, 250 mg. twice a day for one week and then once a day for three months. In May, 1958, a course of "Camoquin", 200 mg. per day, was commenced.

He was referred to me on August 13, 1958, by his physician, with a provisional diagnosis of acute glaucoma. The patient complained that his eyes were sore and dragging and felt full of grit, and that he was seeing coloured haloes round the lights. He had been unable to drive a car at night for the previous three days. There was no previous history of ocular trouble, apart from an attack of acute bilateral catarrhal conjunctivtis in 1953 cured with penicillin drops.

Examination of the patient showed that his visual acuity was 6/6 in both eyes. The intraocular tension was 22 mm. (Schiotz) in both eyes. Slit-lamp microscopic examination showed deposits in the corneal epithelium of both eyes arranged in a three-cornered star pattern. The whole of the corneal epithelium appeared roughened, and it was thought that there was some œdema in the epithelial cells. He gained symptomatic relief with methyl cellulose drops (1%) and "Chloromycetin" ophthalmic ointment, but the deposits remained, and the haloes were undiminished in intensity. On August 26 the "Camoquin" was stopped, and gradually the deposits lessened until, on September 29, slit-lamp microscopic examination could detect no lesion in the corneæ.

In January, 1959, the patient had another flare-up of his lupus erythematosus, and his dermatologist put him back on the "Camoquin" in a dosage of 200 mg. per day.

The lupus is again under control. However, the deposits are now present again in the corneæ. They are not nearly as dense, and are in the pattern of a fine line, just below centre, parallel to the lower palpebral margin.

There were no eye symptoms until a few days ago. This represents a period of eleven weeks of "Camoquin" therapy without trouble. In the last three days the "haloes" have returned, although there is no noticeable change in the corneal deposits. He is being given a further rest from "Camoquin", but as it has such an obviously beneficial effect on the lupus erythematosus it will be started again as soon as the deposits absorb.

Comment.

This case serves to implicate yet another of the antimalarials ("Camoquin") in causing corneal changes. Although it is too early to be sure, it would appear that its effect is less intense, and that therapy can be continued as long as the corneal condition is kept under review, possibly at a reduced dosage level.

Acknowledgement.

I wish to thank Dr. T. Boyd Law of Lismore for his interest in this case.

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SPONTANEOUS RUPTURE OF THE NORMAL SPLEEN.

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CASES of "spontaneous" rupture of the spleen are often regarded as being examples of traumatic rupture, due to injuries which have been unnoticed or forgotten. Despite this scepticism, spontaneous rupture continues to be reported. Such a rupture, in an apparently normal spleen, is recorded here.

Clinical Record.

Mr. X, a fitter and turner, aged 24 years, attended St. Vincent's Hospital, Sydney, on December 12, 1958. On arrival he was complaining of abdominal pain, which had been present for seven hours. This had commenced while he was finishing breakfast, as a gradually increasing pain felt in the left upper quadrant of the abdomen. An hour later the pain was also present in the left shoulder. By mid-morning the pain was very severe and his doctor was called. The latter gave pethidine by injection, but the relief from this was short-lived and he was soon on his way to hospital. On arrival it was seen that his general condition was satisfactory. The pulse rate was 78 per minute and the blood pressure was 140/90 mm. of mercury. Examination of the abdomen revealed tenderness, muscle guarding and rebound tenderness in both upper quadrants and in the left lower quadrant. The liver dullness was unimpaired and bowel sounds were audible. Close questioning failed to elicit a history of previous injury or of dyspepsia. A provisional diagnosis of perforated peptic ulcer was made and laparotomy was performed during the afternoon of the same day. Free blood was found on opening the peritoneal cavity. The source of this bleeding was soon identified as the spleen and this organ was removed. Approximately two pints of blood were evacuated from the peritoneal cavity. The patient made a satisfactory recovery and was discharged from hospital on the twelfth post-operative day.

During his convalescence he was again closely questioned regarding his activities before the onset of his illness. An arbitrary period of three months preceding his admission was chosen, and he was asked to check back over this time as carefully as possible to try to remember an injury. He was assisted in this research by his wife. They failed to remember any such an occasion. His sporting activities consisted of still-water swimming and golfing and were apprently conducted without violence. He claimed to be of temperate habits and denied that he might have sustained an injury whilst drunk.

Examination of the removed spleen was carried out by Dr. R. Holt of the Pathology Department of St. Vincent's Hospital. The specimen appeared to be normal in size, shape and consistency. There was a subcapsular hæmorrhage covering the whole of the diaphragmatic surface. The capsule had been rent in several places, allowing escape of blood into the peritoneal cavity. The underlying splenic cortex was stained with blood and at first inspection appeared to be intact. Serial transverse sections through the spleen were then made and, at one place, an abnormality was seen. In this region there was an irregular hæmatoma in the splenic pulp (Figure I). This

FIGURE I.

A transverse section of the removed spleen. The intrasplenic hæmatoma can be seen, and the site of cortical perforation is indicated by the arrow.

hæmatoma communicated at one point with the surface of the spleen through a small defect in the cortex. This opening would just admit a probe, and no other defect in the cortex was found. Careful histological examination of the spleen failed to reveal any abnormality which would account for the bleeding.

Discussion.

It is suggested that hæmorrhage occurred within the splenic pulp in this case, as a result of some vascular defect. This blood then forced a small passage through the cortex to reach the subcapsular regon and thence burst through the capsule into the peritoneal cavity. It could be said that the cortical defect may have been due to trauma. The small size of this defect makes this seem unlikely, except by penetrating injury with a stiletto-like weapon. Even in such a case one would expect the resultant hæmorrhage in the pulp to follow the weapon track back into the peritoneal cavity at once, rather than to percolate into the splenic substance.

Coleman (1939) described a case similar to the foregoing. He had a male patient, aged 58 years, who sustained a splenic rupture while walking down a hill.

Examination of the removed spleen showed an extensive subcapsular hæmatoma, with an intra-splenic hæmatoma the size of a walnut situated near by.

Susman (1927) described a case of apparent spontaneous rupture of a normal spleen. In his example symptoms commenced as the patient bent down to lift a bucket. Examination of the spleen showed a subcapsular hæmatoma and a laceration of the splenic cortex one and a half inches long by half an inch deep. The intra-splenic hæmatoma found in Coleman's case and by Dr. Holt in the example described here was not present in Susman's case.

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CLOSTRIDIUM WELCHII SEPTICÆMIA FOLLOWING CYSTOSCOPY: REPORT OF A CASE.

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SEPTICÆMIA due to *Clostridium welchii* is rare, only five cases having been seen at the Royal North Shore Hospital of Sydney in the last nine years. It is an even greater rarity after operations on the urinary tract, and has not been reported after cystoscopy alone. In this case a patient died after cystoscopy from a *Cl. welchii* septicæmia which was not recognized *ante mortem*.

Clinical Record.

The patient was a woman, aged 55 years. She had tuberculous spondylitis affecting the eighth and ninth thoracic vertebræ, and had been treated as an in-patient for five months on a Jones frame. She had noticed two days' painless hæmaturia eight weeks before she was admitted to hospital. Heavy continuous hæmaturia associated with burning and scalding occurred after five months' hospitalization. Microscopic examination of the urine revealed pyuria and confirmed the hæmaturia. The patient's blood urea level was 85 mg. per 100 ml. Neither kidney secreted dye on intravenous pyelography. Eight days after the hæmaturia had recommenced, a cystoscopic examination was performed. She was found to have purulent cystitis, with hæmorrhagic areas in the bladder walls. Both ureteric orifices were pouting and suggestive of tuberculosis. Retrograde pyelography was considered unwise at the time.

Two days after operation she developed a high remittent type of temperature with peaks to 103·6° F. and became very pale, the hæmaturia continuing unabated. Her hæmoglobin level was found to be 7·2 grammes per 100 ml. Four days after operation she was transfused with two bottles of blood. No jaundice had been noted. On the fifth day after operation her condition worsened. She became hypotensive and jaundiced, and developed further hæmorrhagic phenomena: she had a hæmatemesis and heavier hæmaturia, and developed a purpuric rash. Her serum bilirubin level was found to be 2·9 mg. per 100 ml. No methæmalbumin was detected in her blood. She died that evening.

At autopsy 14 hours later, the subject was extremely jaundiced. Healed tuberculous spondylitis, a soft necrotic spleen, gas cysts and areas of hepatic necrosis and cherry-red staining of the aortic intima were present. A Grawitz tumour of the lower pole of the right kidney was found—the cause of the painless hæmaturia. The bladder wall was ulcerated, and in the stomach there were a healed ulcer scar and several recent gastric erosions. In all the tissues examined, and in the mucosa of the bladder and stomach, Gram-positive bacilli with surrounding cellular reaction were visible on Gram staining. Blood from the right ventricle was cultured, and revealed a mixed growth of *Cl. welchii* and *Pseudomonas pyocyanea*.

Discussion.

This was undoubtedly a case of *Cl. welchii* septicæmia. The incubation period, the fever, the jaundice, the hypotension and the anæmia are consistent with the known clinical features of this condition (Hill, 1936). Doubt could be thrown on the validity of the post-mortem blood cultures, and the recovery of *Ps. pyocyanea* with the *Cl. welchii* would support this doubt. However, the body was adequately refrigerated, and the cultures were taken fairly soon after death. The histological appearance of the clostridia with surrounding cellular reaction and the clinical features all serve to establish the ante-mortem nature of the septicæmia.

The organisms may have entered the blood-stream through either the gastric erosions or the ulcerated bladder wall. Gas gangrene complicating diseases of the alimentary canal is well documented. Infection may complicate diseases such as appendiceal abscess (Gordon, 1936) or colonic carcinoma (Wyman, 1949), and may also complicate surgery on the biliary tract (Adams, 1944) or on the stomach and duodenum (Quinn *et alii*, 1942; Levene, 1959). Clostridial gastro-enteritis is also a well-recognized syndrome (Cecil and Loeb, 1951). Most of the cases have been characterized by localized gas gangrene rather than by septicotoxæmia. There has usually been a preceding ulcer in the region, and it has been suggested that intestinal *Cl. welchii* infection is unlikely without ulcerative disease (Quinn *et alii*, 1942). This patient had had recent gastric erosions and preagonal hæmatemesis. There had been no clinical evidence of any gastric lesions until 12 hours before death, so these lesions were probably part of the hæmorrhagic tendency and occurred after the septicæmia had already become established. The stomach was probably not the site of entry of the clostridia.

Gas gangrene complicating diseases of and operations on the urinary tract is rare, but well documented. Most urinary tract infections are caused by organisms usually found in the alimentary canal (Powers, 1936) and clostridia are normal intestinal residents (Dubos, 1948). It is possible that clostridia play a greater role in urinary tract infections than is indicated by aerobic urine culture alone. Slade (1955) showed that about 25% of patients with infected urine develop transient bacteriæmia, especially when they first micturate after operation or when a catheter is removed. Goldstein and Abehouse (1934) reported 27 collected cases of gas gangrene of the urinary tract. One of these followed catheterization alone. Turner (1934) reported two cases of urinary tract gas gangrene—both fatal—marked by high fever and profound toxæmia. Mencher and Leiter (1938) reported 11 cases of gas gangrene following surgery on the urinary tract, with a mortality of about 20%. Other cases have been reported by Drummond (1943) and Lazarus (1944).

Clostridia may exist harmlessly in wounds, but clinical infection becomes likely when the organism is associated with necrotic tissue or with necrotizing lesions due to aerobic organisms (Cecil and Loeb, 1951).

This patient had necrotic tissue both in her bladder and in her renal carcinoma. Her urine was infected: she had pyuria, burning and scalding, and at cystoscopy her urine was said to be purulent on macroscopic examination. She had undergone cystoscopy, and was therefore more likely in every way to develop bacteriæmia. Her illness commenced with remittent fever and pallor in the early post-operative period. Therefore the septicæmia probably originated in the bladder.

No blood cultures were prepared from this patient before she died; at least a diagnosis would have been made if this investigation had been performed. Blood cultures are always indicated in any undiagnosed high fever.

Summary.

A fatal case of *Cl. welchii* septicæmia following cystoscopy is described. The possible sources of infection

are discussed, and the ulcerated bladder wall is suggested as the most likely site of entry. The literature on this subject is reviewed, and it is suggested that this is the first report of *Cl. welchii* septicæmia following cystoscopy alone.

Acknowledgements.

I wish to thank Mr. A. Hamilton, under whose care this patient was admitted, and the General Medical Superintendent of the Royal North Shore Hospital of Sydney, for permission to publish this case. I also wish to thank the Departments of Bacteriology and Morbid Anatomy at the hospital for the work they did on the case, and especially Mr. R. W. D. Middleton for his help and encouragement in the preparation of this report.

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STRANGULATION OF A MECKEL'S DIVERTICULUM IN A FEMORAL HERNIA.

By JOHN SWAIN, F.R.C.S.,
Sydney.

IN 1700, Alexis Littré reported three cases of hernia in which an intestinal diverticulum was the only content of a hernial sac, but it was not until 1810 that Johann Meckel described the diverticulum which now bears his name. However, the hernia whose only content is a Meckel's diverticulum still bears the name of Littré.

Jay, Margulis, McGraw and Northrop (1950), in reviewing the incidence of Meckel's diverticulum, found that it was between 1% and 2%, and that the diverticulum varied in situation from less than six inches from the ilio-caecal valve to a maximum of 66 inches from it. The great majority of diverticula are found between 18 and 36 inches from the valve.

Complications due to the presence of a Meckel's diverticulum are not common, but when they do occur, are severe enough to warrant its removal when it is found on routine examination of the lower part of the ileum at laparotomy. The chief complications observed are as follows: (i) obstruction due to volvulus and bands, particularly when a persistent vitello-intestinal duct or band is present; (ii) inflammation; (iii) hæmorrhage and/or perforation, usually in association with the presence of gastric mucosa in the diverticulum; (iv) incarceration or strangulation in a hernial sac.

Littré's hernia is most common in the inguinal region, some 150 cases having been reported. One case has been recorded by Cullen (1954) of a Littré's hernia through the foramen of Winslow; but this hernia also contained other abdominal contents as well as a Meckel's diverticulum, and therefore it does not fit in with the original description. A case has also been recorded by Brodnax (1924) of a Littré's hernia through the greater sciatic foramen.

In a review of the literature on the femoral type of Littré's hernia, 37 cases have been found which conform with the original definition (Payson, 1956; Meyerowitz, 1958), the first three cases—all diagnosed *post mortem*—being those described by Alexis Littré himself, and the first recovery from this condition occurring in 1885 (Strohl and McArthur, 1939). Littré's original description of this condition as translated by Mason (1933) is of interest:

> 1. Patient goes to stool during the whole course of the illness, as the intestinal canal being uninterrupted, the excrements are at perfect liberty to pass from one end to the other.
>
> 2. The patient has no hiccough, or very rarely.
>
> 3. He does not vomit, at least by comparison, less frequently than in ordinary hernia. The vomitus is never fæcal matter.
>
> 4. The patient's belly is never fat, stretched, or full of wind, as in ordinary hernia.
>
> 5. The tumour in the groin is formed more slowly, and never becomes so large.
>
> The diagnostic signs which make this particular hernia recognizable during the operation are:
>
> 1. In ordinary cases of hernia the entire circumference of the intestinal body is engaged in the hernial sac. In this hernia there is only one part in the sac.
>
> 2. The portion of the intestine which forms an ordinary hernia is found doubled in the shape of an arc in the sac. In this particular kind (which concerns us), this portion is single, situated perpendicularly, and terminated by a distinct end.
>
> 3. An ordinary hernia is often formed by intestine and omentum together. This particular kind is always made by the intestine alone.

Clinical Record.

The following is the report of a further case. A male patient, aged 79 years, was admitted to hospital on March 3, 1959, complaining that he had had a lump in the right groin for one week which had gradually become more painful and tender. There was no previous history of a lump in this area. His bowels had been open normally during each day of his illness, and there had been no nausea or vomiting. He had had a left inguinal hernia repaired in 1919, and a prostatectomy in 1955.

Examination showed him to be a thin man, who looked somewhat younger than his stated age, and not in any obvious distress. The temperature was elevated to 100·5° F. Examination of the heart and lungs revealed no gross abnormality. Examination of the abdomen revealed that "the patient's belly was not fat, stretched, or full of wind as in ordinary hernia". In the right groin, situated below the inguinal ligament, was a red, hot, tender, fluctuant swelling, approximately 1·5 in. in diameter. There was surrounding cellulitis spreading in all directions for a distance of 2 in. A diagnosis of incarcerated femoral hernia was made, with infected inguinal gland as a second possibility.

At operation, under general anæsthesia, a right inguinal incision was made down to the external oblique aponeurosis. The skin and superficial fascia were dissected downwards to reveal the sac of a femoral hernia, the contents of which were blue. The standard Lotheisen approach was made, with the additional division of the inguinal ligament over the femoral canal. The sac was delivered into the wound and opened. It contained foul-

smelling brownish fluid and a gangrenous Meckel's diverticulum. The neck of the sac was constricting the diverticulum flush with the wall of the intestine, but the lumen of the ileum was not encroached upon. The diverticulum was excised just proximal to the constriction, and the intestinal wall was repaired transversely in two layers. The hernia was repaired by approximation of the conjoint tendon to the pectineal part of the inguinal ligament with interrupted chromicized gut. Non-absorbable sutures were not used in view of the local infection. The inguinal ligament was repaired and the wound closed, with drainage.

Penicillin and streptomycin were given parenterally after operation, and the drain was removed in 48 hours. The local inflammatory reaction resolved rapidly, and full wound healing was delayed for two weeks by a stitch abscess only. The Meckel's diverticulum removed was completely gangrenous, and measured 4 in. in length and 0·75 in. in diameter. No perforation was present.

Conclusion.

A further case of Littré's femoral hernia is reported, and a translation of Littrés original description and a brief review of the available literature on this still rather rare clinical curiosity are given.

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Reviews.

A Textbook of Neurology. By H. Houston Merritt, M.D.; Second Edition; 1959. Philadelphia: Lea & Febiger. Sydney: Angus and Robertson, Limited. 9¼" x 5¾", pp. 768, with 182 illustrations, and 123 tables. Price: £6 17s. 6d.

THE first edition of this book was reviewed in this Journal in 1955, and it was strongly recommended. It was pointed out that, among other things, the many well-chosen tables provided a wealth of information otherwise hard to obtain, and gave it great value as a work of reference. The commoner diseases and syndromes were clearly described and adequate accounts of, and references to, the rarer conditions were given. Epilepsy was taken as an example of the former, and the author's treatment of the subject was considered comprehensive and sound. His advice on the selection of drugs, their action and dosage, was clear and to the point. General and metabolic diseases, as they affect the central nervous system, were given the important place which they deserve.

In short, very little of importance was left out. An account of the neurological effects of cervical spondylosis was wanting in the first edition, but is not now, and references to the illuminating British work have been appended. The sound writing and judgement which characterized the first edition are to be found in the present one. Alterations and new descriptions have brought the book up to date. The author correctly anticipated that there would be advances in the understanding of metabolic defects and diseases. The inclusion of sections on head and spinal cord injury and their complications is all to the good. Modern views on the significance of myoclonus, both in epilepsy itself and in certain diseases, are given, but must be looked up in the appropriate section, for it is not a special function of a textbook to collate symptoms. Some cross references are given.

The description of arterial syndromes is, as before, excellent. The relevant anatomy is included. Here or elsewhere the parietal lobe might have received greater prominence. However, reasons with which we sympathized were given before for the omission of preliminary sections on anatomy and physiology, and there are many sources of information upon the signs of local lesions of the brain as well as upon anatomical detail. The dynamic pathology of cerebral angiomatous malformations could have been better brought out, and more emphasis could have been placed on the similar lesions of the spinal cord in the consideration of spinal-cord tumours and of myelomalacia. Yet, in this textbook, there is little to criticize except favourably. It might, perhaps, have been said in the previous review that there was almost too much information for the student and recent graduate to digest. Nevertheless, if the book is referred to in conjunction with shorter works, it should be of great value to them also. It is hard to imagine that any neurologist or physician interested in neurology should not want to possess it, or to recommend it to a library. There is evidence throughout, not only of careful and thorough compilation, but also of clinical wisdom and sense of proportion, as in the author's remarks on the drug treatment of Parkinsonism and elsewhere. The rise in price from that of the first edition is extremely small.

Elementary Medical Therapeutics. By G. F. Walker, M.D., F.R.F.P.S. (Glas.), D.C.H., M.R.C.P. (Lond.); 1959. Bristol: John Wright & Sons, Limited. 7¼" x 4¾", pp. 64. Price: 7s. 6d. (English).

THIS is a slim, pocket-sized volume containing some 250 drugs listed conveniently under 42 headings, such as "Amebicides", "Analeptics", "Analgesics", etc., with dosages and a small amount of pharmacological data. Most are official B.P. preparations, but proprietary names are given when necessary. The book is designed for senior students and house officers, to enable them "to pick out the more useful drugs from the enormous list of official preparations and the five thousand proprietary pharmaceutical agents in general use", on the principle that "it is better to know a few drugs thoroughly than a large number vaguely".

The lists have the advantage of being new, thus giving a more authoritative recommendation to some of the most recent drugs than the makers' blotters—e.g. nystatin, oleandomycin and novobiocin of the antibiotics, tolbutamide and diabinese of the orally administered antidiabetic agents, and several others which have not yet found their way into textbooks.

The main function seems to be that of selection and the secondary one that of dose reference; but any such list is surely inferior to that compiled by the individual himself during studentship and residence, and one marvels at such obvious omissions as the "triple sulpha" preparations from a long and detailed page on sulphonamide therapy. In any case, it is unlikely that the frail paper cover would survive many days of pocket usage.

The acid test of any publication is whether or not it is an improvement on existing works, and we believe that the aims of this book have already been more than adequately fulfilled by the latest "Handbook of Medical Treatment". It is certainly no substitute for a large textbook of therapeutics, and is, we believe, an addition of rather doubtful value to the medical library.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Motor Activity of the Stomach", by Vengt Lilja, Acta Radiologica Supplement No. 180; 1959. 9¼" x 7", pp. 94, with 32 illustrations. Price: Sw. Kr. 25.

"Tools of Biological Research", edited by Hedley J. Atkins, D.M., M.Ch. Oxf., F.R.C.S. Eng., Hon. F.A.C.S., with an introduction by Sir Cyril Hinshelwood, P.R.S.; 1959. 8¾" x 5¼", pp. 200, with 113 text-figures and plates. Price: 37s. 6d. (English).

The Medical Journal of Australia

SATURDAY, FEBRUARY 20, 1960.

ALCOHOL AND ROAD ACCIDENTS.

ROAD ACCIDENTS are a very proper subject for medical study, and not least when they are associated with alcohol. The subject has received a good deal of attention in this country, though not perhaps as much as it deserves, and must continue to be studied. Any adequate solution of the problem will necessarily be based on a close examination of local conditions and only secondarily on experience in other countries. However, it is well to know what others are thinking, and we welcome the valuable report which has just been published by a special B.M.A. committee in England.[1] This committee was set up by the Council of the Parent Body in June, 1951, to revise and bring up to date the Association's previously published reports on "Tests for Drunkenness" and "Relation of Alcohol to Road Accidents". The report examines the evidence of the relation of alcohol to road accidents under two main headings: (i) the effect of alcohol on driving performance or skills resembling driving; and (ii) statistical evidence of the proportion of accidents in which it can be established that one or more persons involved had been drinking alcohol prior to the accident. In the first section the report examines first of all the physiological and psychological effects of alcohol and then the effects of alcohol on skills resembling driving and on actual driving performance. The physiological and psychological effects are well known, but can with advantage be studied once more as they are summarized in this report. It is clear from the facts presented that the view often expressed by individuals that alcohol does not impair and may even improve their driving ability is a subjective view; no matter how sincere it may be as a self-assessment, it is very difficult indeed to reconcile it with the physiological findings. The results of tests relating to skills resembling driving and to actual driving performance, which have been carried out in various places throughout the world, only serve to support this view. The tests with dummy cars and the like indicate that the most important effect of alcohol on driving ability is to reduce the capacity to deal with a crisis. "The experiments agree in showing that very small amounts of alcohol may impair the person's capacity to drive with the maximum skill and care of which he is capable." Studies on actual driving performances give results in line with these.

[1] *Brit. med. J.*, 1960, 1: 269 (January 23).

The report examines with some care the reliability of statistical evidence and shows that there are a great many cases in which alcohol has been related to road accidents but for one or another good reason receives no mention in the final statistics. No question is raised of the "cooking" of statistics. It is just that a variety of other circumstances mask the true situation as it is apparent to close observers. The evidence to support this comes from the examination of police records, from deliberate controlled surveys and from the direct observations of police surgeons. As an example of what may happen in practice the report quotes the statement of a police surgeon of wide experience to the effect that about half of the "drinking" drivers seen by him as police surgeon were either charged with "careless driving" or not proceeded against. The report states that other police surgeons are known to have expressed agreement with his views. Police surgeons in Australia, we might add, have expressed themselves similarly. The report goes on to discuss the limitations of purely clinical examination as a means of determining the degree of impairment of function which alcohol produces. It seems clear that the findings from available tests are relatively unreliable, and that the main value of clinical examination (an essential point, of course) is that it provides the only way of detecting physical illness and the presence and extent of any injury. There are also legal limitations relating to the attitude of juries, to the preference of those who are accused to enter any plea as an alternative to that of drunken driving, and to various difficulties in establishing a case.

On the question of legislation dependent on estimation of the concentration of alcohol in body fluids the report is cautious but does not evade the issue. It is pointed out that the introduction of preventive legislation making it an offence for a person to drive a motor vehicle when the concentration of alcohol in his tissues exceeds a certain level is dependent upon two main factors. Firstly, it must be agreed that the presence of a predetermined concentration of alcohol in the body fluids impairs driving ability in a substantial proportion of persons and increases the risk of accident. Secondly, a reliable and acceptable procedure for determining the concentration of alcohol in the body fluids must be available. These methods, the report states, already exist in the case of blood and urine, and there is a reasonably satisfactory method with breath-testing apparatus. On the question of the concentration of alcohol in the blood which should "attract the criminal sanction" it gives as the consensus of medical opinion a level in the region of 50 mg. per 100 ml. This level the committee "on the basis of the evidence examined" regards as the highest that can be accepted as consistent with the safety of other road users.

The essence of the report is summed up in a series of conclusions. We shall quote these in full, but at the same time urge those who are interested to read at least the abridged version of the report printed in the *British Medical Journal* as a necessary background to an appreciation of the significance of the committee's conclusions. These are as follows:

1. The committee is satisfied that the official returns for accidents caused by drivers who have taken

alcohol underestimate very considerably the number of accidents due to this cause.

2. In a high proportion of accidents in which pedestrians have received fatal injuries it has been found that the victim has taken alcohol.

3. Relatively low concentrations of alcohol in the tissues cause a deterioration in driving performance and increase appreciably the likelihood of accident.

4. The existing legislation does not come into effective operation until a very much higher concentration of alcohol in the tissues has been reached, and is unsuccessful as a measure to prevent accidents caused by alcohol.

5. Clinical examination in the absence of biochemical tests is neither sufficiently sensitive nor reliable enough to detect deterioration in driving performance of this degree.

6. A clinical examination is an essential part of the examination of persons suspected of driving vehicles under the influence of alcohol, since it is the only way of detecting physical illness and the presence and extent of any injury.

7. The committee believes that a substantial reduction in the number of accidents caused by alcohol has been achieved where it has been made an offence to drive a motor vehicle when the concentration of alcohol in the tissues is in excess of a certain level.

8. In addition to the conventional methods of taking samples of blood or urine, an apparatus is now available for taking samples of breath from which the concentration of alcohol in the tissues can be rapidly and accurately estimated.

9. The committee considers that a concentration of 50 mg. of alcohol in 100 ml. of blood while driving a motor vehicle is the highest that can be accepted as entirely consistent with the safety of other road users. While there may be circumstances in which individual driving ability will not depreciate significantly by the time this level is reached, the committee is impressed by the rapidity with which deterioration occurs at blood levels in excess of 100 mg./100 ml. This is true even in the case of hardened drinkers and experienced drivers. The committee cannot conceive of any circumstances in which it could be considered safe for a person to drive a motor vehicle on the public roads with an amount of alcohol in the blood greater than 150 mg./100 ml.

It must be said quite frankly that there is little that is new in this report. That does not minimize its importance in any way. On the contrary, it adds strength to a case that has been clear to most informed and thoughtful people for a good long time. There is far too much rationalization and double-talk about the relationship of alcohol to road accidents. Numerous red herrings have been dragged across the trail: confusion of the issues involved with the completely different question of the use or otherwise of alcohol in other circumstances, the quoting of statistics that favour one point of view and the ignoring of others, the placing of undue stress on the variable response to the ingestion of alcohol whether in terms of blood concentrations or behaviour, pious comments about the liberty of the individual, as if the right of an individual to refuse a blood test or other examination was more important than the right of another individual to be protected from reckless and uncoordinated driving, and so on. There are difficulties about compulsory blood tests, and it may be that they are not the answer; but we might at least stress the fact that their use forms the most important type of protection for the innocent driver and do all that we can to encourage their use on a voluntary basis. With further study of the question it may be possible to introduce compulsory tests on a basis that will be accepted as fair by all but the very prejudiced.

Some little time ago a special committee set up by the Victorian Branch of the British Medical Association recommended that the issue of a licence to drive a motor vehicle should be contingent on consent being given to the taking of blood for alcohol estimation or to the application of other approved tests including breath analysis; and that, if the holder of a licence refused to consent, the licence should be automatically cancelled for a statutory period. It also recommended that any car driver with a blood alcohol level of 0·1% or more should be guilty of an offence. Everyone will not be prepared to go as far as this, but the view must be respected as coming from the largest but one of the Australian Branches, and we shall watch with interest the result if the Victorian Branch manages to break down the opposition to its recommendation in its own State. Meanwhile we can see no reason at all for playing down the firm statement that drinking and driving do not mix.

Current Comment.

CARDIAC ARREST.

UNTIL comparatively recently it was assumed that if a man's heart had stopped beating he was dead. Cases in which cardiac arrest occurred on the operating table and in which heroic attempts were made to restart the heart by direct massage were clinical curiosities, and even more so on the rare occasions when such intervention was successful. However, the great advances in medical achievement in recent decades have developed a growing unwillingness to accept any answer as final, and, particularly now that there are specialists in cardiac surgery working at nearly every major centre, surgical intervention in cases of cardiac arrest is being attempted in an increasing variety of circumstances.[1]

V. Parsonnet and A. Bernstein,[2] of Newark Beth Israel Hospital, have recently reviewed the problem in particular relation to cardiac arrest in the operating theatre, and describe the precautions in force at their hospital. They state that in the United States it has been estimated that about 10,000 cases occur each year (this figure apparently refers to cases of cardiac arrest occurring in the operating theatre) and that resuscitation is successful in only 30% of cases. They consider that a success rate of 60% should be possible. The statistical basis for their calculations is by no means clear, but Parsonnet and Bernstein are evidently impressed by the magnitude of their problem, and proceed to discuss it in some detail. They first set up a hypothetical clinical situation where conditions are relatively good. They assume that the anæsthetist takes the pulse and blood pressure every minute. They point out that when he finds the blood pressure unobtainable, his first reaction is to recheck it. Since it takes about 30 to 40 seconds to take each blood pressure, almost two minutes would have elapsed before the surgeon hears the bad news. They say that during the panic of the next 30 to 40 seconds the surgeon will probably lose time in trying to find the non-pulsating aorta, and in questioning and directing the operating-room team. He will then open the chest and cardiac massage may be initiated at a little over three minutes. Irreversible cerebral damage occurs after three to four minutes of cerebral anoxia, and therefore, in the hypothetical situation just described, the patient may recover and have only transient cerebral damage. Parsonnet and Bernstein then point out that in fact it is far commoner for the anæsthetist to check the blood pressure every four to six minutes, and that if it is assumed that

[1] *Brit. med. J.*, 1960, 1: 155 (January 16).
[2] *A.M.A. Arch. Surg.*, 1959, 78: 393 (March).

arrest occurs just after a reading has been taken, and that the subsequent events follow as described, active therapy would not have been instituted before six to eight minutes, by which time irreversible cerebral damage would have occurred. The situation is, of course, even worse when cardiac arrest occurs in the cystoscopy room, or in some other out-of-the-way place, because an equipped team is usually not available and more valuable time is lost.

In an effort to reduce the mortality rate of cardiac arrest at the Newark Beth Israel Hospital, a threefold programme has been instituted, consisting of (i) education, (ii) organization and (iii) the use of cardiac monitor alarms. Lectures are given to the attending staff and house staff on the principles of prevention and treatment of cardiac arrest, and these lectures are repeated yearly. In addition, a group of surgeons give animal demonstrations on a proper technique of cardiac massage. A cardiac arrest team has been organized which can be called up by a paging system at the hospital. All operating rooms, delivery rooms, fracture rooms and cystoscopy rooms are provided with emergency trays containing the essential materials for prompt therapy. Cardiac monitor alarms are provided for each operating room, as well as for the cystoscopy room and the post-operative recovery room. This apparatus is attached to all patients when they are put on the operating table, except those who are receiving local anæsthesia. The monitor remains in use until the patient is moved to the recovery room, and if indicated, another monitor is then applied until the patient has recovered fully.

Since this programme was instituted there have been three cases of cardiac arrest, and two of these three patients survived. During the period when a cardiac monitor was applied only to poor risk patients, there were two cases of survival out of six cases of arrest. Before the introduction of the use of a cardiac monitor, in 28 cases of cardiac arrest there were 22 deaths and one decerebrate patient. In addition to achieving a greater survival rate with the use of monitors, Parsonnet and Bernstein consider that a number of arrests have been averted by prompt therapy.

Parsonnet and Bernstein point out that whilst the educational and organizational arrangements described in this article have been instituted in many hospitals throughout the United States, the unique feature of their programme is the use of a cardiac monitor alarm on every anæsthetized patient. They consider that it is necessary to use the monitor on all patients, because 50% of cardiac arrests occur in patients with apparently normal hearts, and the occurrence is therefore unpredictable. After careful study of six of the several types of cardiac monitors available, most of which work on a combination of visible and audible impulses triggered by the highest peak of the *QRS* complex of the electrocardiogram, Parsonnet and Bernstein conclude that the one indispensable feature is an alarm that sounds at the cessation of cardiac activity.

Parsonnet and Bernstein's paper is of a type which may produce an adverse reaction in some, because it emphasizes the tendency to put an even greater reliance on mechanical devices; however, if their proposals sound extreme to us, this may in part be a reflection of national differences in outlook and methods of working. Parsonnet and Bernstein themselves state that even more important than prompt therapy in cases of cardiac arrest is its prevention, and it could be argued that in the hands of a skilled anæsthetist cardiac arrest is in fact very rare indeed. There may be a point at which over-dependence on automatic aids begins to undermine the insight of the operator into the condition of his patient. However, whether the attaching of a cardiac monitor to every anæsthetized patient will some day be accepted as normal routine or not, sudden cardiac arrest is a challenge to the preparedness of any surgical team which may be called on to cope with it, and it is always interesting to read of cases in which success has been achieved under unusual conditions. In another paper from the Newark Beth Israel Hospital,[2] a case is described in which a patient's heart stopped beating after his return to the ward, after an exploratory laparotomy, but his life was saved by prompt action and preparedness. An interesting detail is the statement that in this hospital each "nurses' station" is equipped with a sterile scalpel hung in an accessible spot and labelled appropriately. In the case described the patient's condition was noticed by a nurse, who promptly sounded the alarm and had the scalpel ready when the anæsthetist and an intern arrived within a minute. In this paper the authors list the 14 other cases of successful surgical intervention, in which cardiac arrest has occurred outside the operating theatre, that they have been able to collect from the literature, and discuss the principles involved. They state that all such cases should be reported "so that some criteria can be established to determine proper circumstances for undertaking emergency resuscitative measures". The guiding principles suggested are as follows:

> 1. A physician must be present or in the immediate vicinity at the moment of cardiac arrest. 2. "Cardiac arrest" must be the primary diagnosis. 3. At least two, but preferably three, physicians must confirm the diagnosis of death and agree to the proposed therapy. 4. The cardiac arrest team must be summoned to participate in the emergency care. Treatment must not be delayed by waiting for the entire team to assemble. 5. Treatment must be started within three to four minutes.

The authors of this paper then comment that they believe that these recommendations provide the doctors involved with adequate emotional and legal protection to allow them to treat the emergency, and that in this way no single individual will carry the entire responsibility.

THE CHEMICAL PREVENTION OF CARDIAC NECROSES.

HANS SELYE, well known for his concept of "diseases of adaptation", has turned to another field which badly needs illuminating—that of cardiac necrosis and inflammation without obstructive coronary disease.[1] Selye and his co-workers have shown that various corticoids sensitize the myocardium and other tissues to the action of various sodium salts—phosphates, sulphates, perchlorate. Rats and other animals treated with corticoids and the appropriate anion developed necrotic areas. Various forms of stress potentiate these actions, while potassium and magnesium chloride prevent them. Much of the present work is simply an account of the experiments leading to these conclusions.

Selye then reviews the necrotizing cardiopathies in man, and advances the hypothesis that a number of agents must be responsible, but that stress and conditioning with various electrolytes, particularly sodium salts, probably play an important adjunctive role in pathogenesis. On the basis of his work, he suggests that Fieldler's myocarditis, infective myocarditis and certain "idiopathic" subendocardial necroses may be prevented or treated more effectively with potassium and magnesium chloride. This, of course, is at present nothing more than speculation, and Selye freely admits it.

To the investigator and student of cardiology, this is an interesting piece of work. The inferences Selye draws concerning human disease must be regarded as unproved and at times far beyond the evidence that exists. Further work alone will tell whether his hypothesis has any truth in it. Nature does not usually give up her secrets so easily. Nevertheless, the facts are clear enough, and it is to be hoped that their presentation in this well-documented book will stimulate further inquiry.

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[2] *J. Amer. med. Ass.*, 1959, 170: 1053 (June 27).

[1] "The Chemical Prevention of Cardiac Necroses", by Hans Selye, M.D., Ph.D., D.Sc.; 1958. New York: The Ronald Press Company. 9" x 5¾", pp. 246, with 20 illustrations and 15 tables. Price: $7.50.

Abstracts from Medical Literature.

GYNÆCOLOGY AND OBSTETRICS.

Clinical Evaluation of Pelvi-Cephalography.

E. L. KING *et alii* (*J. Amer. med. Ass.*, July 4, 1959) assess the advantages and disadvantages of X-ray pelvimetry against the hazards of ionizing radiation in a review of 1200 cases. Although it is impossible to assess the weight of the fœtus or the size of its head accurately by clinical methods, the advantages of clinical pelvimetry are emphasized by the authors. The work of Stewart and co-workers at Oxford and Ford at Tulane University is cited as indicating possible deleterious effects of radiation in pregnancy. Apart from the risk of leukæmia and other malignant disease in the child, it has been suggested that diagnostic X-ray examination may have unfavourable genetic effects on the ovaries of the mother and the gonads of the unborn child. The authors found it impossible to group patients solely on X-ray pelvimetric findings into those who could expect easy delivery, those likely to have difficult vaginal delivery, and those who would need Cæsarean section. In recent years they have performed X-ray pelvimetry only when doubt has arisen after careful clinical evaluation of probable disproportion. In 1946–1947 ante-natal X-ray pelvimetry was used in 38·8% of patients, while in 1956–1957 the figure was 7·4%. The decreased resort to X-ray pelvimetry did not increase the fœtal risk. A series of 1200 patients studied by X-ray pelvimetry and clinical assessment suggests that careful clinical study of the pelvis will suffice in 70% to 80% of obstetric patients. Ante-natal X-ray pelvimetry as a routine procedure is deprecated, but it should not be withheld in doubtful cases. The authors consider that X-ray study alone is not conclusive in many cases of suspected disproportion. The decision rests on a study of all the findings, with, frequently, a trial of labour as the final recourse. Moreover, it is not wise for the radiologist to express an emphatic opinion regarding the probable obstetric outcome.

Problems in Hystero-Salpingography.

M. R. DUFRESNE, L. GÉRIN-LAJOIE AND R. MALTAIS (*J. Amer. med. Ass.*, July 4, 1959) consider that hystero-salpingography is a procedure of diagnostic accuracy, but has certain limitations when operative and histo-pathological findings are critically compared with the radiological interpretation. The diagnostic usefulness of hystero-salpingography is critically examined in 935 cases, with consideration of the clinical symptoms, X-ray findings and subsequent pathological findings. Of the 935 patients, 52% came to operation. It was found that congenital anomalies of the uterus were diagnosed with 100% accuracy and occurred in 21 patients (2%). Carcinoma of the corpus uteri was suspected in six patients and confirmed in all at operation. The diagnostic accuracy for fibromyoma uteri was only 58%, since the X-ray appearance was normal in cases of small intramural and subserous fibroids. This procedure is valueless in cases of endocervicitis, there being a diagnostic error of 90%. The diagnosis of endocervical polypus was 65% accurate and polypi of the uterine cavity had a diagnostic accuracy rate of 75%. Four cases of suspected ectopic pregnancy were correctly diagnosed, but another four cases found at operation were not diagnosed by hystero-salpingography. Some types of tubal abnormalities could be accurately diagnosed. There was a low rate of accuracy in the detection of tuberculous salpingitis and tubal endometriosis. The authors consider that a firm diagnosis of tuberculous salpingitis cannot be made by hystero-salpingography. They conclude that hystero-salpingography is a safe and simple test with definite value in determining the choice of therapy. However, doctors should be aware of its limitations as a diagnostic tool.

Early Detection of Cancer of the Cervix.

K. H. MARTZLOFF (*West. J. Surg.*, May–June, 1959) evaluates current methods used for the early detection of cancer of the cervix uteri. Examination by exfoliative cytology, colposcopy, the Schiller test, careful inspection and instrumental exploration of the cervix and biopsy are discussed in this respect. A vaginal smear should be prepared for examination of the exfoliative cytology, as the first procedure after the introduction of the speculum. Lubrication of the speculum should be avoided, a vaginal douche should not have been used recently, and the smear should be fixed immediately. The most serious shortcoming of exfoliative cytology is the "false negative" smear with a 10% incidence. The less common "false positive" smear is not so serious from the patient's point of view because it stimulates further study and makes biopsy mandatory. The author considers that a positive smear, whether true or false, does not justify definitive major surgery or radiation therapy without confirmatory diagnosis by biopsy. After 10 years' use of the colposcope, the author has become progressively and regretfully less impressed with its value. He considers the lack of popularity of colposcopic examination is due to inability of many of those who have used it to confirm the claims made for it, and since 1940 his use of the colposcope has been only casual. During the time the author used the colposcope he did not recognize any lesion with it that had not been noticed and suspected by careful naked-eye inspection. The Schiller test (1928) is based on the fact that cancer epithelium usually shows an absence of glycogen. Altered as well as pathological epithelium takes little or no stain. The author considers this test is not specific for cancer or for areas of cancer-in-situ, since the majority of unstained areas show no histological evidence suggestive of probable beginning cancer. He has not discovered a histologically proved area of cancer-in-situ with the iodine test, nor has the test proved to be of any more assistance than careful inspection with the unaided eye. Careful visual inspection with instrumental palpation and exploration of the cervix is a simple procedure and likely to arouse justifiable suspicion of cancer. The portio is probed with a uterine sound and the sound is passed into the cervical canal to determine its patency, elasticity or tendency to bleed. The production of free bleeding or the release of retained secretion is regarded with suspicion by the author. Biopsy is still the bedrock for the diagnosis of neoplasm of the cervix. It is employed when any suspicious area is observed on the cervix, when the Papanicolaou smear test is suspicious, or when there is bleeding from the cervical canal. Generally, the use of a biopsy punch or diathermy excision biopsy is not favoured. The author obtains a biopsy specimen of the cervical canal by a preliminary sharp curette exploration, followed if necessary by a full cone biopsy specimen if cancer-in-situ is suspected. Certain essentials in ultimate diagnosis by biopsy are stressed. They include the correct selection of the area for biopsy, removal of an adequate amount of tissue for examination, and the excision of the entire length of the cervical canal in conization biopsy. The author considers there is no substitute for a carefully obtained history, careful systematic examination of the cervix and the use of biopsy when it appears advisable.

The Place of Vaginal Hysterectomy.

L. A. GRAY (*West. J. Surg.*, May–June, 1959) discusses the indications, operative technique and post-operative complications of vaginal hysterectomy in gynæcological surgery, on an analysis of 376 consecutive operations on private patients. In the first 30 years of this century the only widely accepted indication for vaginal hysterectomy was complete prolapse of the uterus. Since then, largely through the influence of N. S. Heaney and the Chicago school, the indications for hysterectomy by the vaginal route have been widely extended. Repair of cystocele and rectocele, in addition to hysterectomy, was performed on 90% of patients in this series. Enterocele was found and repaired in 36 patients. The necessity for some vaginal plastic repair has been an important factor in the selection of these cases. An analysis of the pathological findings in the series shows that conditions such as chronic cervicitis, myomas, subinvolution, adenomyosis and carcinoma-in-situ of the cervix were outstanding indications. However, the author stresses the importance of this operation for patients suffering from the "combined syndrome" of vaginal relaxation, uterine descent, pathological lesions of the uterus and disturbed function of the uterus. The author describes and illustrates his technique for the combined operation of vaginal hysterectomy and repair. Important points in the operation are: angle suture of the ligaments, completion of the hysterectomy before proceeding to the vaginal repair, care in repairing any enterocele present, angulation of the urethral sphincter, and high rectocele repair. Instead of inverting the uterus during its removal, the author proceeds straight up on each side of the organ. The tubes and ovaries are inspected and removed only in exceptional instances.

Half of the patients received a blood transfusion, broad spectrum antibiotics were given for five days, and "Gantrisin" medication was continued until bladder function was normal. Post-operative complications in this series included: bleeding of consequence in six patients, extraperitoneal hæmatoma requiring laparotomy and transfusions in two patients, ileus in two patients, and phlebitis in four patients. One patient died of pyelonephritis and coronary occlusion on the twenty-eighth day after operation. Accidents during operation comprised incising the urethra, the bladder and the rectum, each on one occasion. All healed after suture without incident. In two patients it was necessary to open the abdomen to complete the hysterectomy. Late complications after this operation were as follows: 12 patients with stress incontinence, 23 with recurrent cystocele, six with enterocele and 10 with significant shortening of the vagina.

Carcinoma-in-Situ.

J. S. KREIGER AND L. J. MCCORMACK (*Surg. Gynec. Obstet.*, September, 1959) state that in their experience treatment of cervical carcinoma-in-situ can be safely individualized in accordance with the extent of the disease and its response to treatment. Their observations are based on experience with 124 cases of cervical carcinoma-in-situ diagnosed and treated at the Cleveland Clinic between January, 1950, and January, 1958. Thirty-seven of their patients had a radical conization performed, followed in six weeks by hysterectomy; in 33 of these no residual disease was found after conization. In the second group of 87 patients radical conization was used for both diagnosis and treatment, and 79 of these have been observed for periods from six months to eight years; in all but two of these examination of cervical smears for neoplastic cells has given repeatedly negative results. The authors note that their findings as regards the effectiveness of conization are at variance with those of some other workers, and suggest that technical factors may account for this. They conclude that in most cases radical conization seems to be sufficient for diagnosis and treatment, provided rigid criteria are followed. The method of conization and tissue preparation is described, and complications after conization are discussed.

PÆDIATRICS.

Residual Encephalopathy Following Roseola Infantum.

R. BURNSTINE AND R. PAINE (*A.M.A. J. Dis. Child.*, August, 1959) state that roseola infantum is not always a disease of benign prognosis and present six cases of persistent neurological complications. All their patients have residua, including hemiparesis, and in addition at least three are mentally retarded and three epileptic. They consider that the prolonged sequelæ are related to prolonged seizures occurring during the pre-eruptive stage of roseola. The incidence of this complication is uncertain. The total reported cases with permanent sequelæ now number nine. The exact ætiology of these convulsions and of the residual encephalopathy is not clear, but a number of possibilities exist such as cerebral thrombosis, cerebral anoxia, post-infectious encephalitis, a specific encephalitis due to the roseola virus, or even the effect of prolonged convulsions alone. Possible treatment seems limited to stopping or to preventing the associated convulsions, the authors emphasizing the need for vigorous therapy of any febrile seizure. Acetylsalicylic acid and phenobarbital prophylaxis may be considered in children under the age of 24 months with unexplained fever, especially if roseola is suspected.

Early Ambulation After Acute Nephritis.

W. MCCROBY *et alii* (*Pediatrics*, September, 1959) report that early ambulation (i.e., permitting the resumption of normal physical activity after subsidence of signs of the acute stage) does not appear to predispose a patient convalescing from acute nephritis to recrudescence of the disease or the evolution of chronic nephritis. Physical activity was limited for a short time even in this study. A period of two to four weeks usually elapsed after subsidence of the acute stage before the convalescent patient spontaneously resumed completely normal, unrestricted physical activity. This time period did not exceed 60 days from the onset of nephritis in any case. All patients engaged in normal activity from that time on, even though there were manifest laboratory evidences of active nephritis. The course of convalescence of 35 children was followed for at least two years. Thirty-four of the 35 children completely recovered from nephritis as judged by one or more normal Addis counts of the urinary sediment. Most of the patients had some degree of proteinuria and hæmaturia at the time of resumption of full physical activity. These abnormal urinary findings took a variable time to disappear, but in the majority of the patients the results of ordinary urinary examination had returned to normal by nine months after the onset of nephritis. The erythrocyte sedimentation rates had returned to normal in all patients by this time. The authors conclude that the value and necessity of continuing bed rest after symptoms and signs of the acute stage of nephritis have subsided in typical cases are unsubstantiated.

Duration of Bed Rest in Rheumatic Fever and Subsequent Heart Disease.

B. LENDRUM *et alii* (*Pediatrics*, September, 1959) state that it is no longer considered "radical management" to mobilize a patient promptly upon disappearance of the acute signs and symptoms of rheumatic activity instead of imposing prolonged periods of bed rest. A series of 269 patients, who were sent to a convalescent home immediately after clinical evidence of the acute rheumatic process had presumably disappeared, there followed a programme of rapid rehabilitation. If certain physical findings and laboratory studies (especially temperature, sleeping pulse rate, leucocyte count and erythrocyte sedimentation rate) approached normal limits, the child was allowed increasing activity from bathroom privileges and mild sedentary activity to essentially unlimited activity, exclusive of strenuous, sustained or competitive effort. Most children were advanced through these stages in two to five months, the average stay at the convalescent home being three months. These children were followed up for periods of from two to 13 years to determine whether abandonment of prolonged bed rest was harmful. The authors' findings supported the contention that prolonged bed rest and restriction of activity after an acute attack of rheumatic fever are not necessary for optimal healing of the injured heart. They conclude that the economic burden and psychological damage of such enforced inactivity can be safely avoided in most instances by permitting early return to normal activity.

Hæmolytic Disease of the Newborn.

R. J. WALSH AND H. K. WARD (*Aust. Ann. Med.*, November, 1959) have analysed the histories and serological findings of 395 immunized Rh-negative women, and state that their survey does not support the usually accepted theory that the severity of hæmolytic disease in infants usually increases as the number of pregnancies increases. They confirm the recent findings that "family patterns" often occur, and that the severity of the disease in the first affected child is sometimes a guide to the probable severity in subsequent infants. Although there are many exceptions, a mildly affected infant is more likely to be followed by infants who survive than by infants who die. Conversely, when the first affected infant dies or is still-born, further infants are likely to be similarly affected. The parity of the mother when the first affected child is born is not related to the chances of survival of the infant. The severity of the disease increases as the mean titre of the incomplete antibody in the maternal serum rises, but there are numerous exceptions to the general rule. The effects of immunization by a blood transfusion are similar to those which occur when immunization follows a pregnancy. The frequency of stillbirths is not significantly greater when immunization is the result of blood transfusions.

Hiatus Hernia in Children.

I. J. CARRÉ (*Arch. Dis. Childh.*, August, 1959) states that neglect of the study of the natural history of partial thoracic stomach in children has been largely responsible for the differing views expressed on prognosis and on the need for and value of particular forms of treatment. After a study of 53 patients and a review of the literature, he concludes that in about 60% to 65% of all clinically affected and untreated children the condition follows a relatively benign clinical course, the majority of patients being free of symptoms by two years of age. With but few exceptions, these children show improvement either before or coincidently with weaning on to solid food. Symptoms in a further 35% are not relieved by weaning on to a mixed diet. Most of these patients suffer from troublesome symptoms up to four years of age or longer. A few of these latter children, representing about 5% of all patients, develop an œsophageal stricture. It has been estimated that in the absence of an œsophageal stricture less than 5% of all untreated patients would die.

Points of View.

TOWARDS IMPROVED MEDICAL CARE IN AUSTRALIA.

FROM the patient's point of view medical care is very much a matter for the individual. The patient would like to think that at certain times he knows when he needs it.

Probably everywhere in the world some patients—a significant percentage of the population of patients—are in need of medical care which they cannot afford to purchase. To say this is to speak very simply, for in almost every instance where the edifice of medical treatment of a patient is examined, something is not infrequently found wanting in one or more of the three pillars of that edifice—nutrition, housing, education.

Thus improvements in medical care can come about only when the pillars receive expert and long-term examination, and when the plans are laid to make good deficiencies found—obviously a matter of long-term planning. Secondly, something can be done by shorter-term planning to improve other deficiencies in community resources, so that medical care can be made available to patients in need of it—i.e., to repair the edifice as it stands on its present foundations.

One very important matter does not appear to have received adequate attention, and that is the high cost of surgical and medical services, especially in protracted illness, in major illness and in recurring minor illness, especially for young families, retired persons and low income families generally. For the most part the person who is without income because of his illness is able to receive free hospitalization and free treatment—free for him, even though the hospital may be in debt despite Commonwealth contribution.

Once financial rot sets in for the individual in the cases mentioned above, and for the worker, especially where a spouse (working or dependent) or other dependent relative becomes ill, there is moreover an aggravating factor (and these remarks apply mainly but not only to the metropolis) —the degree of unavailability of good diagnostic facilities to the average general practitioner desiring them, and for those patients unable to afford such services without significant hardship.

Already some unenlightened political thinkers see in lay-controlled diagnostic centres the panacea to these and other ills, little realizing of course how basically impracticable such a conception is unless the centre is integrated with hospital practice.

At present, overcrowding or shortage of beds, and the present organization of out-patient departments of the major hospitals, make it impossible, in the main, for hospitals to provide a diagnostic service in the manner indicated above.

There is no question but that Australian general practitioners are among the best. However, the fact is that standards of our medical facilities (including general practice), like those elsewhere, vary widely.

Principles Involved.

Before a remedy can be supplied for the deficiencies briefly referred to, the principles involved must be recognized: (*a*) the maintenance of high standards of medical practice, academic, technical and ethical, for the benefit of the individual patient of today and of the future; (*b*) the planning of such measures as will make medical practice of high standard available to those who need it; (*c*) the planning of measures which will ensure that the treatment provided is in fact sufficiently comprehensive in scope to meet the needs of the patient; (*d*) ensuring the integrity of (*a*) in the face of any ill-advised politically expedient attempts to achieve (*b*) and (*c*).

Of course the remedy is already being sought, and much effort is being devoted to the matter; but obviously more needs to be done.

Certain Proposals.

"Easier said than done" was never more applicable than here. It is, nevertheless, appropriate for the purpose of this brief article to enumerate relevant proposals: (i) Extending the present health schemes with the aim of ensuring as far as possible a uniformly high standard of medical and hospital practice irrespective of the patient's financial status; this is obviously not possible without subsidy. (ii) Realistic Federal financial assistance for the maintenance (and expansion) of hospital facilities—especially teaching hospitals, and also outer suburban and country base hospitals. Perhaps money could be made available along the lines of the "matched grants" which the Canadian Federal Government makes in certain regards to the Provinces. (iii) Reorganization of the out-patient departments of the major hospitals so as to serve routinely a diagnostic function. In regard to this, consideration should be given to basing the work on the appointment of half time general physicians (internists) suitably supported by paid half-time assistants and full-time trainee resident staff.

These are momentous considerations. The last-mentioned especially might require a major reorientation in medical thinking. Properly organized diagnostic facilities, with each patient under the sole control of one general physician (with any necessary referral to a consultant of a specialty section), would provide the practitioner and patient with an almost essential facility which today is lacking for all but the wealthy or some of the profession themselves, or those unfortunate enough to be so ill as to be in-patients of a teaching hospital. Let me hasten to emphasize that the diagnostic service of each major hospital would in no way supplant the competent assistance of various consultants in all specialties which is already part and parcel of Australia's way of medical life. The diagnostic service indicated would merely be there to reinforce medical practice at the wish of any practitioner needing it.

In other words, let it be emphasized that for most of his practice the average practitioner or specialist manages satisfactorily. But where diagnosis requires much investigation and consultation (for the low and middle income groups referred to), the answer usually lies in inconvenient and not inexpensive journeys in search of brass plates; and the answer, by this means, is not always complete.

Medical Education and Social Medicine.

It remains to allude to other aspects—to those of medical education and of social medicine. Suggestions regarding these can be enumerated briefly as follows:

1. Extension of facilities for post-graduate training by creating special assistantships both to the internists and other specialists of the diagnostic services, and also to various in-patient units of the major hospitals; also, or alternatively, similarly using any available post-graduate teaching hospital.

2. Provision of paid post-graduate residencies to permit a practitioner to engage in prescribed practice and study to improve knowledge and experience in a chosen field—e.g. anæsthetics, child health, internal medicine, emergency surgery, obstetrics, orthopædics, etc.—together with a financially sound and feasible scheme for the provision of *locum tenentes* to enable the local practitioner, especially from solo practice and in isolated areas, to participate in this training scheme. Such "locum" positions should be available to all registrars, if not actually a requirement of their own posts. If the latter, the registrar should receive adequate financial grants in advance to cover costs involved in changing his home, or in being absent from his home.

3. The enactment of legislation which would make it incumbent on a post-graduate medical education foundation, in cooperation with the hospitals concerned, to provide and prescribe suitable training for all residents and registrars, such training to include psychiatry and the comprehensive care of chronically ill patients.

4. The establishment of rehabilitation departments at the major hospitals.

Conclusion.

It is impossible to see some merit in the above comments and at the same time to be complacent about the scope, if not the standard also, of existing hospital and medical practice. The matters involved are not ones entirely for the profession alone, for it is the community which must endow the profession with the facilities necessary to provide adequately for the medical and medico-social care and education of the patients.

From some points of view it would appear that the profession is on trial to produce a leader who can attract and utilize the services of enlightened experts from within and without the profession, who alone can indicate clearly and adequately what should be done, how it might be done, and what the cost would be.

If this is so, time will tell whether the profession is equal to the task, and time is running out.

"CONSENSUS."

British Medical Association.

NEW SOUTH WALES BRANCH: SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held on September 17, 1959, at the Robert H. Todd Assembly Hall, British Medical Association House, 135 Macquarie Street, Sydney, DR. MUNRO S. ALEXANDER, the President, in the chair.

Toxæmia of Pregnancy.

DR. R. B. C. STEVENSON read a paper entitled "Toxæmia of Pregnancy" (see page 282).

DR. ANGUS MURRAY said that the solution of the problem lay in the laboratory, and it was probable that the portrait of a biochemist would occupy the vacant plaque referred to by Dr. Stevenson. However, the carefully amassed evidence (such as had been presented by Dr. Stevenson) handed to the right man in the right laboratory would carry him a long way towards finding a solution. The work done by Dr. Stevenson and his colleagues at the Women's Hospital, Crown Street, was undoubtedly on the right lines, and it was to be hoped that somebody in some laboratory would seize on the significance of some of their findings. Dr. Murray then referred to Dr. Stevenson's statement that dieting of the mothers was reducing the weight of babies, so that no more very big babies were being born. Dr. Murray said that he himself had never been convinced that dieting of the mothers affected the weight of the babies to any great extent. He asked Dr. Stevenson whether he had ever had any control series proving the point, or whether it was only a general impression. It was a difficult question, because prematurity came into the picture to a greater degree than in any series of controls. Dr. Murray also asked Dr. Stevenson whether another impression he had was shared by him—that medical induction of labour in preeclamptic mothers seemed to be much more rapidly effective than in ordinary cases.

Dr. Stevenson, in reply, said that he had been brought up in the old school which stated that dieting of the mothers did not affect the weight of babies. He referred again to the British blockade of Germany in the first World War; figures published showed that the half-starved German women produced babies weighing nine and 10 pounds. However, more recently he had changed his view. The first evidence was that if a diabetic patient, apart from having her diabetes medically controlled, was suitably dieted, she did not have a big baby. In other words, the mother's diet affected the weight of the baby. At the Royal Women's Hospital, Melbourne, the attack on weight was being followed up. The pædiatrician, Dr. Ivon Hayes, had published the statement that since that régime had been adopted, they had not had the nightmare of a primipara with a big baby. Dr. Stevenson said that he could not make that definite statement for Sydney, but that was his impression. In Liverpool it had been shown that the size of the baby depended on the amount of liquor amnii. There was also the puzzling condition of renal agenesis; the baby was not growing, and the obstetrician had the impression that the mother had made a mistake in her dates. Such babies did not grow much after the seventh month. However, there were other factors than weight operating in those conditions. Dr. Stevenson said that it was his belief that weight control did affect the weight of the baby, but so did exercise.

DR. E. SUSSMAN asked Dr. Stevenson his views on subsequent pregnancies after a severely toxæmic first pregnancy; he wondered whether he would set any time limit, such as two years. Dr. Sussman then referred to Dr. Murray's comment on the ease of medical induction of labour in severe toxæmia. He said that his impression had been the same, and that in his experience such patients often went into labour spontaneously some weeks before term.

Dr. Stevenson, in reply, said that he endorsed Dr. Murray's and Dr. Sussman's comments on medical induction of labour in severe toxæmia; it worked well. The patient seemed to go into labour fairly easily. Referring to Dr. Sussman's question on the time factor relating to a second pregnancy, Dr. Stevenson said that he had been brought up with the idea that at least two years should elapse before a second pregnancy was undertaken. However, that belief had been shaken when he was asked to look after a doctor's wife who had severe toxæmia in her first pregnancy. Her husband had asked why there should be any delay; he pointed out that it was a progressive disease, and that as the patient grew older her blood pressure would rise, her kidneys would not work so well, etc., so that she would be in a worse position to stand up to a pregnancy. That had caused Dr. Stevenson to think; however, he did not know the answer. He still recommended a delay of two years, because the patient's condition would go on improving for that period, and any residual hypertension after that time would be permanent. If a patient had had toxæmia, she would perhaps be more likely to get it again; but with the régime of control that had been outlined in his paper, he did not think there had been a much greater incidence of toxæmia in subsequent pregnancies.

DR. G. S. RIEGER asked Dr. Stevenson about the use of chlorothiazide and "Diamox"—at what stage he gave the drug.

Dr. Stevenson, in reply, said that at present he had a patient who was a doctor herself, and who was about 33 weeks pregnant with her second baby. She had had a very mild toxæmia with her first. She had decided that, as her urine output had decreased, she would put herself on "Diamox". Dr. Stevenson said that, if a patient was up to the stage where she needed the help of a fairly powerful diuretic, then she was nearly up to the stage of being in bed or in hospital under supervision. Dr. Stevenson said that he did not use either "Diamox" or chlorothiazide unless the patient was being very carefully supervised. Referring to dosage, Dr. Stevenson said that with chlorothiazide the routine should be two days on and one day off, or something similar. One thing was worthy of note about chlorothiazide—it enhanced the effects of hypotensive drugs, particularly the ganglion-blocking drugs.

DR. W. G. MCBRIDE said that he disagreed with what Dr. Stevenson had said. He thought that diuretics like "Diamox" and chlorothiazide kept many patients out of hospital, if they were given early, before œdema accumulated. They were specially useful for patients who had a tendency to develop œdema. The diuretics for oral use together with hypotensive drugs had greatly helped to reduce the incidence of severe toxæmia.

DR. S. D. MEARES said that in the problem of toxæmia the clinician had gone very far; he could now control the disease. It was left to the biochemist to tell him why he could control it by the means adopted. Dr. Meares said that he hoped the plaque at the University of Chicago would be filled by two pictures—an obstetrician holding the hand of a biochemist.

DR. P. L. DANIEL said that one point interested him. He had previously had a busy obstetric practice in the country, but had had only one eclamptic patient. Much was said about the preeclamptic state; he wondered whether that state was present in all eclamptics. The one patient he had cited lived next door to him, and in addition to routine examinations he saw her every day as they talked over the fence. She appeared perfectly well, until suddenly one morning eclampsia set in.

Dr. Stevenson, in reply, said that over the years he had seen many eclamptic patients whose medical attendants had said that there had been nothing to indicate toxæmia a week before eclampsia set in. He himself had not seen that type of patient. He believed that there was always something to make the medical attendant alert—for example, a gain of 6 lb. in a month instead of 4 lb., slight tightness of the wedding ring, a rise in blood pressure not due to nervous factors. Not in any case, except in the presence of twins or hydatidiform mole, had he seen that fulminating toxæmia arise so quickly. With meticulous attention to all points discussed, the trend would be seen. It might be a rise in blood pressure from 100/50 to 100/80 mm. of mercury, the patient's initial weight, an excessive gain in weight, slight œdema, mild proteinuria, etc. In his experience, there had always been something.

DR. ALEXANDER, from the chair, said he was sure that much of the success in the subject under discussion achieved in Sydney and, indeed, in Australia, had been largely due to such people as Dr. Stevenson and his colleagues at the Women's Hospital, Crown Street.

VICTORIAN BRANCH: ANNUAL CHURCH SERVICES.

THE eleventh annual special church services of the Victorian Branch of the British Medical Association will be held on Sunday, February 28, 1960, at 11 a.m., at St. Paul's Cathedral and St. Patrick's Cathedral. The preacher at St. Paul's Cathedral will be the Most Reverend Frank Woods, M.A., D.D., Archbishop of Melbourne, and at St.

Patrick's Cathedral the preacher will be the Very Reverend L. P. Moran, Administrator of the Cathedral.

Members will enter the Cathedrals in procession, and are asked to assemble in the precincts fifteen minutes before the commencement of the services. Members attending St. Paul's Cathedral should assemble in the Chapter House on the second floor of the Cathedral Buildings, entering from the Cathedral Close. It is desired that academic dress be worn, but this is not essential. All members, whether or not they are wearing academic dress, are asked to join the processions and sit together in a group. The Branch Council invites medical students to attend the services, and also to join the processions. Separate seating will be reserved for members' families.

Out of the Past.

INSANITARY DWELLINGS IN SYDNEY.[1]

[From the *Australasian Medical Gazette*, May, 1898.]

THE authorities of the municipality of Sydney are to be congratulated on having undertaken a tour of inspection of such parts of the city of Sydney as contain "slum" tenements. It may come as disquieting news to some people that such undesirable quarters exist in our midst. It must however be gratifying to all well-wishers of the public weal to learn that numerous dwellings coming under the above category have been condemned as unfit for human habitation. The admirable work of erecting healthy abodes for the humble wage-earner, as well as for the very poor, has in many instances been commenced by private philanthropy and furthered by civic bodies invested with the necessary legal powers in most European cities. Further, it has been proved, that not only has outlay of the kind been shown to be true economy, but that actually a fair rate of interest may be expected to be returned on the capital invested. The demolition of the Sydney rookeries will no doubt cause individual inconvenience, if not actual hardship: but, inasmuch as the herding together of persons in such areas tends to furnish recruits for the hospital or the prison, it is the first duty of the State to attack the evil at its source. Nevertheless it is earnestly to be hoped that the sequel to the step just taken by our city authorities will be action in the direction indicated.

Correspondence.

GENERAL PHARMACEUTICAL BENEFITS.

SIR: I congratulate Mr. Edward S. Stuckey on his letter published in your Journal of January 16, 1960, *re* general pharmaceutical benefits. For some time now I have felt that I could not encourage my children to practise medicine. We seem to fill in forms for Pensioner Benefits, Repatriation Benefits, and always the inevitable duplicate copy of prescriptions to such an extent that it becomes a burden.

I never cease to tell patients that the duplicate prescription is for a "so-called" free medicine for which they pay out of their taxes. The latest imposition of stating the age of a patient, if under six, for suspensions of penicillin, etc., does not take into account the unfortunate person who just cannot swallow capsules or tablets.

I agree with all that Mr. Stuckey has written, and my excuse for apathy is that I had thought that the five shillings charge for prescriptions was purely an affair between chemist and patient. At least one chemist has spoken to me, wondering why our profession was not more perturbed at the course of events. But then, the medical practitioner also carries the baby for the Hospitals Contribution Fund and Medical Benefits Fund. Where there is no resident medical officer, the honorary probably does more work for public ward patients than for private patients, but is not entitled to a fee, and then is requested not to charge for giving the necessary certificates. On every Medical Benefits Fund cheque the doctor pays exchange and gives the receipt plus duty stamp.

Perhaps we have, like the poet, become "Past Caring". The price of freedom is eternal vigilance in all walks of life.

Yours, etc.,

DAVID R. REID.

118 Kyogle Road,
Kyogle, N.S.W.
January 24, 1960.

SIR: Dr. E. S. Stuckey, a member of the Council of the New South Wales Branch, in THE MEDICAL JOURNAL OF AUSTRALIA of January 16, 1960, complains of the apathy of the profession, in particular of the general practitioner, towards the proposed new changes in the general pharmaceutical benefits of the Commonwealth Government. Does he write on behalf of the Council, or does he write as an individual?

We must agree with him that exasperating, and at times illogical, alterations appear and have appeared in the benefits from their inception. Benefits come and benefits go, the quantities of drugs varying from time to time and so do the number of the repeats; and all these without, apparently, any complaint from either the Federal and/or State Councils.

We can well remember the methods used by the Federal and State Councils to reject the McKenna formulary. Without doubt members of these Councils were anything but apathetic. Extraordinary meetings of local associations were called together to discuss the proposed formulary, most of whom were addressed by members of Council. And whether or not there was a political reason, as was the opinion of some, behind this medico-political opposition, the stated principle and the only principle behind this opposition was the right of the profession to prescribe freely for their patients.

When ultimately the Federal Government accepted the profession's fee-for-service principle and introduced the National Health Service with its life-saving drugs and the Pensioner Medical Service, it confidently expected, in particular as regards the Pensioner Medical Service, the right to prescribe freely with the drugs of the British Pharmacopoeia. We are sure that this freedom was expected; but gradually and inevitably this freedom has been whittled away—*vide* pages 125, 126, 127 of the booklet—and no complaint apparently, from any Council who previously had so vigorously defended this basic principle of the profession, both medico-politically and politically. Why?

In any case it is exasperating and time-consuming to a general practitioner in prescribing for a pensioner to discover that he may be required to write four prescriptions on separate forms—one is a N.H.S. item, one is a D.D. item, one a pensioner item and finally one item not covered by the service—and doubly exasperating to be informed by the pharmacist that the N.H.S. item had been discontinued the previous week.

But let us not stray from Dr. Stuckey's complaints. Yes, the profession is apathetic; apathetic in our opinion for two reasons. The first, due to fees being ridiculously low, having regard to the present purchasing value of the pound and that of the pound in 1938, when general practitioner fees were 12s. 6d. a visit and 10s. 6d. consultation, practitioners must work long hours to earn a reasonable net income. Such practitioners in the past did attend some of their local association meetings during the year, but soon learnt how futile resolutions passed at such meetings were. Some matters discussed at local association meetings and subsequently referred to the annual meeting of delegates, and there sometimes carried unanimously, they were either referred or rejected by the Council in their wisdom (*sic*!). And at such meeting of delegates, members of Council have the right and privilege to enter into these discussions, but quite frequently reserve this right until they could discuss it at their own quarterly meetings. The second reason, in our opinion, of the apathy of the profession is the regrettable fact that the Council has lost the respect of many of its members; not only have they lost this, but they have lost touch with its members.

Examples and/or causes of such losses are: (i) The majority of special sections make their own agreements with workers' compensation insurance companies as to fees. (ii) It took the Federal Council more than six years to persuade the Repatriation Commission to agree to the payment for services on a fee-for-service basis for widows. (iii) Even with workers' compensation insurance companies, this Branch Council took over two years to reach an agreement for an increase in schedule fees. (iv) This Council's (N.S.W.) weak-kneed attitude towards the State

[1] From the original in the Mitchell Library, Sydney.

Government, when it never actively moved so as to more than persuade this Government to change the regulation by which a member of the medical profession cannot be a member of a public hospital board. This iniquitous regulation was introduced by a Liberal government, and the Labor governments certainly have made the most of it. Apparently, the profession can do the real work of a hospital gratuitously, but is not permitted to have any share in its management.

It has lost touch with the profession, due we think mainly to the method of election of members to Council; such method with recent minor changes is the same as it was in 1900. After a long struggle minor changes were made about fourteen years ago; such changes resulted in certain sections being represented directly on Council; for example, one member represents women members, one represents Civil Service members and two members represent the metropolitan and two the country local associations. But the method of election of these, if they are not returned unopposed, is completely farcical. Every member who exercises his vote at the annual elections for the New South Wales Council has a right to vote for the woman candidate, the Civil Service candidate and the country local associations. Thus, in effect, male members probably elect an opposed female candidate, general members the Civil Service candidate and so on.

In company with many other active members, one of us (C.H.J.) fought hard to have a truly representative Council, but we soon discovered that our greatest opponents were members of the Council, and, protected by its antique articles of association, we discovered it is practically impossible for members to force Council to alter its reactionary attitude. The Branch's articles of association apply that only Council can instigate a change and/or alteration in such articles or by-laws, and company law (as has been smugly and unctuously stated at extraordinary meetings by its chairman) can only be accepted or rejected by the meeting; amendments are not permitted. And in this respect practically three-quarters of the profession are disfranchised, having regard either to distance or stress of business. This is in complete difference to that of all limited companies, who provide for proxy votes. The only method of effecting radical and definitely necessary alterations is by the elections of members bound to effect such changes after elections.

Yes, Dr. Stuckey, the profession is apathetic, and such apathy is due to alleged leaders. A far, far cry when one of us (C.H.J.) joined the Branch proud to be a member of an organization whose then president, the late Dr. Scot Skirving, thrilled him when, in the midst of a battle with friendly societies over reasonable fees, publicly exclaimed: "You can drive a horse to water but you cannot make him drink."

That a similar crisis looms, a crisis when the economic well-being and freedom of the profession is at stake, is our opinion; and unless the profession is forced from its apathy by an active and truly representative Council, it is possible it may be placed in a similar position as the members of the Parent Body are, where general practitioner is in an economic unenviable position and its consultants in an enviable position.

Let the Council wake from its drugged sleep.

Yours, etc.,

C. H. JAEDE,
C. B. INGLE.

4 Robey Street,
Mascot, N.S.W.
January 21, 1960.

SIR: In his letter to the Journal of January 16, 1960, Dr. Edward S. Stuckey sounds a very real warning to the profession.

Whether the profession is prepared to admit it or not, its members in the past have been instruments of the Government in implementing the National Health Service and Pensioner Medical Service, and have been denied, in a limited sense, the free choice of prescribing. Within the next few weeks, it would appear that the profession will implement a scheme of the details of which it knows virtually nothing.

The Government's contention that we are not forced to prescribe within the limits of Government benfits is nonsense, as we must concede to the obvious desires of our patients if at all possible, just as politicians appear to do at election time. This must inevitably affect our judgement sometimes.

If the scheme is as benign as the authorities would have us believe, they have nothing to lose by submitting it in full, so that we can agree to cooperate, by election, if the majority of members of the profession considers it a scheme which they would wish to work for the Government.

It is as foolish to commit ourselves to what we consider to be an unreasonable service, as it would be to say "no" to a Government on principle.

I suggest, therefore, that the Federal Council inform the Government that the entire scheme be submitted to all interested parties for their consideration. If this courtesy is not forthcoming, then I recommend that we say "no" until our ideas are given full consideration.

Yours, etc.,

G. K. VINCENT.

351 Kingsway,
Caringbah, N.S.W.
January 19, 1960.

SIR: Although the medical practitioners are being kept much in the dark concerning the number of drugs that will come within the scope of the proposed Pharmaceutical Benefits, it appears that there is little hope of such ataraxic drugs as "Largactil" and "Stelazine' being added to the list, even though it is to be made more extensive. I am not suggesting that these compounds be added to the "free list" to tranquillize all and sundry—far from it; but there are a number of psychotic patients (particularly those suffering from schizophrenia and manic-depressive psychosis) who not only require such drugs in the acute phase, but often need to be maintained on these drugs for long periods. For example, "Tofranil", an expensive drug, is specifically used for depression (it is not a tranquillizer); however, its use may prevent a patient giving up his work, going into hospital for a month or more to have electroconvulsive therapy. Such drugs used in cases of debilitating mental disorder are just as necessary as insulin is to a diabetic patient, yet nobody would suggest that insulin be not obtainable under the Pharmaceutical Benefits.

I suggest that a selected few of the ataraxic drugs be added to the benefit list for "specific diseases", in much the same way as some of the wide-spectrum antibiotics have been in the past.

Yours, etc.,

S. G. (BILL) ROWE.

Chatswood,
New South Wales.
January 29, 1960.

THE CASE AGAINST TONSILLECTOMY.

SIR: My letter (November 7, 1959) attempted to show that the indications for the operation were not understood. Subsequent letters opposing this opinion have only served to emphasize the point. The indications for the operation were not discussed by me, because so much has been written in the past. Repetition would be boring. (One very rare but indisputable indication has not been mentioned by any recent correspondent—tuberculosis of the tonsil associated with scrofula.)

In most instances correspondents to your column, myself included, rarely argue the points raised by the person who initiates the correspondence. Instead they just state their own point of view. The situation is then analogous to that of two or more somewhat truculent dogs circling one another and showing their teeth at odd intervals.

The indications for the operation given by these writers are only two when simplified—(i) large tonsils, (ii) recurrent tonsillitis. Sooner or later every child in the civilized world falls into one or both of these categories. Therefore, logically, all children should have the operation. But the writers sensibly do not do this, and subdivide their cases into various empirical groups, thus avoiding committing themselves to an all-or-none law.

One doctor is correctly "surprised" to read that tonsils and adenoids "grow again" (December 12, 1959). She is right. The terminology was wrong. I should have said "we all see patients with lymphoid tissue between the pillars of the fauces who have already undergone tonsillectomy". Of several explanations, the most obvious is that the lingual tonsil hypertrophies into the space. With regard to this, on November 16, 1959, we began inspecting the throats of every patient attending my surgery, who admitted that tonsillectomy had been done. Results: 41 admissions to date; no trace of lymphoid tissue in six only; the remainder still had tonsils. Of these,

three had tonsillitis and this was the cause of their having come. One was a local dentist, aged 34, temperature 38·6° C., enlarged glands on right side of neck, and a typical infected right tonsil. This was confirmed by another doctor who is a tonsillectomist. The series will continue and be analysed into age groups, etc., later.

Another and eminent writer (December 19, 1959) says:

> . . . Practical experience is essential. It is impossible for any person to master such a subject by reading alone; just as impossible, I would say, as it would be for me to become an artist by correspondence.
>
> Because of the impossibility of producing maestros by post, most ear, nose and throat surgeons shirk the responsibility of trying to pass on (when challenged in your Journal from time to time, to do so) what information on the subject they could. . . .

Just how does he suggest that a surgeon obtain the "practical experience" which "is essential"? Practice means doing the job. Thus, unless born a "maestro", the young surgeon practises until he learns his job. I would not like him practising on my kids.

Later, adenoidectomy is mentioned. Children with adenoid facies have been shown by thousands of movie camera films to be quite capable of breathing through their noses (Eastman Clinic). John Heath, senior, L.D.S., R.C.S. (England), explains this mouth breathing, should anyone care to read his papers. His work, although controversial for a long time, meets almost universal acceptance by the dental profession. Time and time again I have made mouth breathers and snorers close their lips and demonstrated to their parents that each nostril was patent. Also, when they they are old enough to cooperate, the Valsalva manœuvre has shown that the ear drums move, and therefore the Eustachian tubes are open.

How can it be that doctors observing children have a divergence of opinion on what is the commonest problem presented to them? Surely the difference is likely to be due to lack of imagination, knowledge or open-mindedness on all sides. Omitting sordid explanations, one can say that the commonest cause today is that practitioners of long standing, who have for many years removed tonsils or other organs, cannot face the possibility that the treatment, however well intended, was unnecessary, and that mortality and morbidity resulted. Therefore, they rationalize just like other human beings.

We all have a feeling that there is a case for tonsillectomy. A feeling is not good enough. We must know who, when and why, before we risk our patients' lives.

Figures are not available here about mortality in Australia. I have a newspaper cutting from *The North Queensland Register*, reading:

> Melbourne, June 25, 1959. By sheer chance, a team of heart surgery specialists was at the Alfred Hospital today when news came in that a five years old boy had "died" after a tonsil operation at Oakleigh, 10 miles away.

Cardiac massage was used. There was no statement as to the end result, although the boy was still alive at the time of the newspaper article.

Another eminent ear, nose and throat man objected to "the ugly word 'butchery'" used in my letter. He offered no constructive criticism, but contented himself with being "amused". He considered that "Dr. Rogers owes this column a simple apology for a needless vulgarity". How can I apologize to a column? A column may be articulate, but it is certainly inanimate. Further, a reputable column is hardly likely to publish anything "vulgar".

Yours, etc.,

S. K. ROGERS.

P.O. Box 460,
Mount Isa,
North Queensland.
January 9, 1960.

PREMEDICATION OF CHILDREN.

SIR: Methyl pentynol seems to share with chlorpromazine a propensity for dimming the critical faculty both of patient and prescriber.

In the original correspondence quoted by me, Butler and Hodges drew attention to the discrepancy between the summary of Rendell's original article, which seemed to contend that methyl pentynol was a good premedicant, while the text contained much that suggested the reverse.

Dr. Gusterson in his letter (MED. J. AUST., November 28, 1959, page 829) remarks that the chief point at issue seems to be that of vomiting during induction. In his original article (*Lancet*, May 7, 1955, page 940), he points out that vomiting during induction does not seem to be encountered when thiopentone is the inducing agent. Dr. McDonald (MED. J. AUST., September 19, 1959, page 418) contends the child is spared a needle; the choice seems to be a prick or a puke!

In my experience it was in the recovery stage that the bag-mustering set in in earnest; to me standing mute, sucker in hand, the recovery stage seemed considerably prolonged; and I beg leave to doubt if alcohol premedication and barbiturate induction are a really sound theoretical combination except for mortal enemies. I eschew the alcohol.

Dr. Gusterson in his original article proposes a dose-by-age schedule; but as most fathers of two or more children will realize, this is not an entirely scientific method; as, though all children display a tendency to grow, they do so at very different rates. I attempted a dose-weight schedule and steadily increased the dose up to 2 ml. per stone, in the hope of achieving a pharmacologically consistent result. I did so, but only in the field of magnitude of post-operative vomit.

Dr. McDonald pooh-poohs my gastrogogue; but I seem to remember that an alcohol test meal consists of 50 ml. of 7% alcohol, which is less than the 500 mg. of alcohol used to sedate a two to four year old on the schedule proposed by the experts. He passed tubes on children, and on one occasion I beg leave to suggest the thing did not quite reach the stomach, but his resting juice was very slight—suggesting his scopolamine is much more effective than the tincture of belladonna that I used. I wonder if we could not obtain excellent results using this alone, preferably as a suppository.

Dr. Gusterson smacks us both sharply on the wrist for passing stomach tubes for fear of psychic trauma. I hasten to assure him that I was a very sensitive registrar, and always anæsthetized the patient first with thiopentone and endotracheal nitrous oxide-oxygen-"Trilene"; it was the œsophagus that I worried about.

Methyl pentynol: pleasant to receive (McDonald, MED. J. AUST., *loco citato*), the flavour of which is hardly pleasant—it vaguely suggests paraldehyde (Gusterson, *Lancet*, *loco citato*)—seems to me a drug that lacks that consistent action so dear to anæsthetists. While its use may be satisfactory in certain places at certain times, I fail to see how it can be recommended for general use, particularly on such diverse grounds. The use of thiopentone, after all, cannot be universally recommended for children except in the hands of the cautious and canny, and this drug is highly predictable in its action.

I premedicate children orally; I tell them it hurts too much to have an operation while awake so I'll put them to sleep. About 5% are resistant (c.f. 10%, Rendell). They may spit in one's eye, but do not vomit. They dislike needles, but 4% lignocaine rubbed on the skin will obtund the prick considerably, and they dislike gas fight-and-choke technique even more. The respiration is undepressed by the use of this method and the cost is truly negligible.

The nervous child who faces the situation and overcomes it has developed its character, and subsequently usually exhibits greater confidence; it is the spoilt or mismanaged child that is difficult.

Yours, etc.,

I. R. McDONALD.

Lister House,
137 Russell Street,
Toowoomba, Queensland.
January 13, 1960.

CORNEAL ŒDEMA DUE TO CHLOROQUINE.

SIR: I think we all owe something to Dr. Hertzberg for his timely warning (MED. J. AUST., January 23, 1960) about the ocular effects of chloroquine therapy.

Opinions differ as to whether the appearances seen are due to œdema or actual deposits of chloroquine or its derivatives in the cornea, and I speak of the latter in this letter. In the last twelve months I have seen three definite cases of what looked like deposits in the cornea, due to the use of this drug. All were middle-aged women being treated for rheumatoid arthritis.

The first case presented with a story of seeing haloes around lights, and was admitted to hospital for tension phasing, but this was quite normal. Slit-lamp examination

showed a fine striated appearance in the epithelium of the lower part of the cornea. The symptoms have disappeared after removal of the drug, but the striations have persisted and the vision is normal.

The second case complained about haloes around lights and occasional double vision. She also had fine deposits in the lower half of both corneæ, which have persisted after removal of the drug, and the vision was normal.

The third case complained of difficulty with her vision, and it was reduced to 6/9 each eye after correction, due to opacities more central than the other two. Her physician was unable to take her off the chloroquine, as this was the only drug which had given her relief.

I mention these cases to point out that the condition is not altogether rare, and other ophthalmologists may have a series of similar cases.

Yours, etc.,

S. J. GODDARD.

Bogong Chambers,
603 Dean Street,
Albury, N.S.W.
January 25, 1960.

MEDICAL MATTERS AND THE PRESS.

SIR: I have no desire to enter the lists and to tilt at the Quixotian windmills which the correspondence in your columns, under the heading of "Medical Matters and the Press", seems to have started turning, except to point out that those who live in glass houses should not throw stones. Like that well-known tea, good results speak for themselves, in neurosurgery as elsewhere. However, now that certain techniques in connexion with the neurosurgical treatment of Parkinson's disease have been discussed and criticized in the lay Press and by a journalist-correspondent in your issue of January 16, 1960 (pages 105-106), I would like to draw the attention of medical practitioners to some misconceptions which these articles may have created in their minds. I refer in particular to paragraph 8 of Mr. Ramsden's letter, in which he said that Mr. Dowling had misinformed your readers when he stated that "chemical methods are more extensively employed in accredited centres the world over than diathermy . . . ".

I am reasonably well informed on the medical literature of this subject. I was present at all the symposia and papers read on the surgery of Parkinson's disease, presented at the First International Congress of Neurological Sciences held in Brussels in July, 1957. Chemical methods were employed in papers read from New York, Paris, Boston, Tokyo, Buenos Aires and Madrid. I have personally visited most of the clinics in Europe and North America where this class of surgery is done, during postgraduate tours in 1953 and 1957, being acquainted with the chiefs of these clinics. With this knowledge, I can entirely agree with Mr. Dowling's statement, and consider that he is entitled to an apology from his lay critic.

If it comes to numbers of patients treated, the latest figures from Cooper's Department of Neurosurgery at St. Barnabas Hospital, New York—viz., "more than 800" (January, 1959)—would indicate that he has probably treated more patients by his "chemical methods" than all the rest of he clinics using diathermy put together; to say nothing of the large number of patients (140 up till March, 1957) treated at the Juntendo Medical School and the Tokyo University Medical School, in Tokyo, by Narabayashi, Okuma and Shikiba, who used a different chemical substance.

As far as the United Kingdom is concerned, if diathermy were "predominantly" used, it seems hardly likely that the following would have appeared in the *British Medical Journal* of November 28, 1959, under the heading of "Any Questions":

> Q. Have there been any recent advances in the treatment of post-encephalitic Parkinsonism?
>
> A. Until recently, the standard treatment for Parkinsonism *of any kind*, was the use of drugs of various kinds and often in combination . . . and in no case have the drugs ever succeeded in totally reversing the disability . . . A new form of therapy is now well established, namely *chemical* pallidectomy or, more recently, thalamectomy. In the hands of an experienced neurosurgeon, the results of the latter operation have to be seen to be believed . . . Bilateral operations can be carried out, and, *at the time of writing* there is no doubt that in selected cases, this procedure is the treatment of choice.

The italics are mine. It is hardly necessary for me to point out that these "answers" come from the best qualified authorities on the subject.

Furthermore, I would like to point out that the nature of the procedure used by Cooper is different from the procedures published by Spiegel and Wycis and Reichert and quoted by Mr. Ramsden in paragraph 10 of his letter. So again Mr. Dowling is correct in claiming that "this surgery" originated in New York.

Finally, on the subject of pioneering, and taking Mr. Ramsden's definition of "the beginner of an enterprise" into account, I think I can claim to be the pioneer of this class of surgery in New South Wales (if not Australia), having performed the first chemo-pallidectomy operation by a method, slightly modified from Cooper's, on a female patient of 63 at the Royal Prince Alfred Hospital on April 4, 1957, with the assistance of Dr. G. K. Vanderfied. Except for using a different type of cannula, with an inflatable balloon at its tip, I have not found it necessary to change the technique or "abandon chemical methods'.

Yours, etc.,

R. A. MONEY.

143 Macquarie Street,
Sydney.
January 27, 1960.

CENTRAL DISTRICT AMBULANCE HEADQUARTERS APPEAL.

SIR: On January 28, 1960, the Lord Mayor of Sydney, Alderman H. F. Jensen, with the patronage of His Excellency the Governor of New South Wales, Lieutenant-General Sir Eric Woodward, opened the above appeal. The aim is to raise the sum of £85,000 to complete the building of new headquarters for the Central District Ambulance Service. Most Sydney doctors will know how very inadequate and unsuitable are the present premises of the service. A new site has now been bought, conveniently placed next to the Empire Theatre in Quay Street, Sydney. The land is free of debt.

The service has £45,000 in hand, and now appeals for the sum of £85,000 in order to cover the cost of its new headquarters, the building of which is about to begin. Many large companies, as well as private individuals, have already contributed, and the object of this letter is to ask members of our profession to give their generous support to this essential service. Needless to add, donations are deductible for income tax purposes, and the gift of £50 or more entitles the donor to life membership for self and members of family up to 16 years. Address for donations: Operation Headquarters Appeal, Central District Ambulance Service, Ambulance Avenue, Railway Square, Sydney.

Yours, etc.,

A. W. J. BULTEAU,
Chairman,
Central District Ambulance Service,
Sydney.

19 Beauty Point Road,
Mosman, N.S.W.
February 4, 1960.

THE TELEPHONE.

SIR: A telephone is one of a doctor's most important instruments. The Postmaster-General is supposed to give high priority to their supply and maintenance, and yet it is surprising just how much difficulty can arise when one requests some service—e.g., transfer or installation of extensions.

One is well aware that such service is limited by technical factors, but one can check to find out how real these are, often with interesting results. As a person who has transferred one's site of practice twice in the last few years and has had outdoor extensions, I can speak with considerable feeling on the subject. It would appear that:

1. The official policy is one of genuine cooperation, and that if one can speak to a responsible person in charge of a department you will receive consideration.

2. That it is useless depending on inquiries to people who, as a matter of policy, I gather, refuse to identify themselves, and therefore can tell you anything they like or be impertinent with impunity.

3. That it is equally useless writing letters (always accompanied by the prescribed forms) without taking the precaution of also speaking to the departmental head. This precaution is recommended especially regarding entries in telephone books—a point in which I am sure others will bear me out.

4. That the true priority of doing jobs comes from your local technical staff, and that it is a matter of luck what sort of staff you have.

One could enlarge on this with examples to illustrate each of the above points; but suffice it to say that if it is the policy of the Postmaster-General to give a priority where it is required, their policy often falls down somewhere along the long wavy line between order and execution.

I hope that these pointers gained by experience might be a help to others. I make no dark hints about the value of "pulling strings". If there are strings to pull in such cases, I would be only too glad to learn of them.

Yours, etc.,

249 Mitcham Road,
Mitcham, Victoria.
February 4, 1960.

T. SMYTH.

THE DANGEROUS TOURNIQUET.

SIR: Would it not be possible to discourage the over-enthusiastic use of the tourniquet as advocated by so many first-aid instructors? Whereas I have never seen a life or limb saved by indirect pressure, I have, on many occasions, treated tissue completely devitalized by the use of a tourniquet—tissue which could probably have been saved if either no first aid had been given or if a simple pressure bandage had been applied directly to the wound.

I believe that all industrial first-aid kits and ambulances should be supplied with shell dressings, which are ideal for the dual purpose of stopping bleeding and covering large wounds. The use of the tourniquet should be abolished in accident cases, except perhaps for traumatic amputation or snake-bite.

Yours, etc.,

Radovick Street,
Korumburra,
Victoria.
February 1, 1960.

M. J. M. LAPIN.

THE FUTURE OF THE AUSTRALIAN ABORIGINAL.

SIR: There is little I can agree with in Dr. J. B. Cleland's article on "The Future of the Australian Aboriginal" published in THE MEDICAL JOURNAL OF AUSTRALIA of January 21, 1960. I think this is because Dr. Cleland is speaking on incorrect first principles. Early in the article he says: "Twenty thousand years or more of separation . . . has brought about changes . . . in their mental endowment. This latter is of a high order, but not quite the same as in Europeans . . . Considering that his brain is that of a first-class nomad it is not surprising that in the full-blood from time to time the 'Call of the Wild' is a compelling force."

In our present state of knowledge there is no reason to doubt that all races of mankind extant at the moment are biologically equal. The General Conference of U.N.E.S.C.O. in 1949 adopted three resolutions, which committed the organization "to study and collect scientific materials concerning questions of race", "to give wide diffusion to this scientific material collected" and "to prepare an educational campaign based on this information". It was with this in view that U.N.E.S.C.O. invited a number of anthropolgists and sociologists from various countries to meet as a committee of experts in U.N.E.S.C.O. House in December, 1949. They discussed all aspects of the problem at great length and finally drew up a declaration, parts of which I will now quote.

> Scientists have reached general agreement in recognizing that mankind is one; that all men belong to the same species "Homo sapiens". It is further generally agreed among scientists that all men are probably derived from the same common stock; and that such differences as exist between different groups of mankind are due to the operation of evolutionary factors of differentiation . . . A race, from the biological standpoint, may therefore be defined as one of the groups of populations constituting the species "Homo sapiens" . . . Wherever it has been possible to make allowances for differences in environmental opportunities, the tests have shown essential similarity in mental characters among human groups. In short, given similar degrees of cultural opportunity to realize their potentialities, the average achievement of the members of each ethnic group is about the same . . . So far as temperament is concerned, there is no definite evidence that there exist inborn differences between human groups. There is evidence that whatever group differences of the kind there might be are greatly over-ridden by the differences springing from environmental factors. As for personality and character, these may be considered raceless. In every human group a rich variety of personality and character types will be favoured and there is no reason for believing that any human group is richer than any other in these respects . . . According to present knowledge there is no proof that the groups of mankind differ in their innate characteristics, whether in respect of intelligence or temperament. The scientific evidence indicates that the range of mental capacities in all ethnic groups is much the same.

The aborigines are our biological equals, and the reason why they had not progressed beyond the economic stage of nomadism is given by Frederic Wood Jones in his book "Australia's Vanishing Race":

> We must remember that the progress from the phase of the nomadic hunter towards a higher civilization has always been made by way of the development of agriculture and husbandry, by the attainment of a settled mode of life such as this entails, and by the accompanying leisure and the development of foresight begat of the seasonal phases of an agricultural and pastoral existence. These things were denied to the Australian by the very nature of his new home. Australia possessed no animals that could be domesticated and brought into the service of man as beasts of draught or burden; or even any that could be bred and conserved as a source of food. It possessed no native plants that were readily taken into cultivation for the benefit of the primitive agriculturist. Indeed the white colonist has made no more conservative use of the native animals and plants of Australia than did the aborigine, for in no single instance has he adapted to his needs any animal or plant indigenous to Australia.

The economic status of the aboriginal when the white colonist first arrived in no way alters the fundamental thesis that these people are our biological equals. Whilst in Port Hedland recently I saw "first-class nomads" who in the span of a few weeks had become active and industrious members of a mining company. (So much for his idea that assimilation will require decades or generations!) These natives did not want to take Dr. Cleland's advice and become wage labourers in the pastoral industry. They decided they wanted to own and manage their own mining company, and this they have done for 14 years against tremendous opposition. None of them felt the "Call of the Wild". This "Call of the Wild" is not a primitive inborn character, but an economic necessity to do with their former way of life.

Dr. Cleland does not face the facts when he says that there is no scandalous treatment of our aborigines. If he reads the recent book "Yandy" he may alter his opinion. This is a factual story (confirmed by the natives themselves) of their struggle during the last 14 years. It is a story of their struggle to regain their lost pride and dignity and independence. It is a story which I believe will rank with that of Eureka.

Yours, etc.,

366 Church Street,
Richmond, E.1,
Victoria.
January 31, 1960.

BARRY E. CHRISTOPHERS.

Naval, Military and Air Force.

APPOINTMENTS.

THE following appointments, changes etc. are published in the *Commonwealth of Australia Gazette*, No. 7, of January 21, 1960.

AUSTRALIAN MILITARY FORCES.

Australian Regular Army.

Royal Australian Army Medical Corps (Medical).

To be Temporary Major, 23rd October, 1959.—3/12032 Captain C. N. Matthews. [In lieu of the notification respecting this officer which appeared in Executive Minute No. 126 of 1959, promulgated in Commonwealth Gazette, No. 76, of 1959.]

Citizen Military Forces.

Northern Command.

Royal Australian Army Medical Corps (Medical).—1/46775 Captain J. L. Jameson is appointed from the Reserve of Officers, 11th November, 1959. The provisional appointment of 1/39131 Captain B. S. Purssey is terminated, 14th November, 1959. *To be Captains (provisionally)*—1/39131 Brian Swan Purssey, 15th November, 1959, and 1/39252 Roderick Hans Gibson Apel, 20th November, 1959.

Eastern Command.

Royal Australian Army Medical Corps (Medical).—2/127881 Major R. B. Geeves is appointed from the Reserve of Officers, 29th October, 1959, with pay allowances of Captain (at own request). The provisional appointment of 2/270322 Captain R. D. Fewtrell is terminated 21st October, 1959. *To be Captain (provisionally) 22nd October, 1959*—2/270322 Ralph Douglas Fewtrell.

Western Command.

Royal Australian Army Medical Corps (Medical).—The provisional appointments of the following officers are terminated, 28th November, 1959:—Captains 5/26582 D. N. Spence and 5/26583 P. W. Burvill. *To be Captains (provisionally), 29th November, 1959*—5/26582 David Norman Spence and 5/26583 Peter Walter Burvill.

Reserve Citizen Military Forces.

Royal Australian Army Medical Corps (Medical).

Northern Command.—Honorary Captain L. T. G. Geraghty is retired, 31st December, 1959.

Southern Command.—Honorary Captain E. G. Bannon is retired, 31st December, 1959.

The following officers are placed upon the Retired List with permission to retain their rank and wear the prescribed uniform, 31st December, 1959.

Northern Command.—Captain M. W. Carseldine.

Southern Command.—Captains P. Jones and P. R. Slater.

The following appointments, changes etc. are published in the *Commonwealth of Australia Gazette*, No. 8, of January 28, 1960.

ROYAL AUSTRALIAN AIR FORCE.

Permanent Air Force.

Medical Branch.

The probationary appointment of Flight Lieutenant R. W. Plowright (0310776) is confirmed.

The resignation of the folowing officers is accepted, 20th November, 1959:—Squadron Leader W. Blake (014736), Flight Lieutenant K. M. Sowden (015775).

Air Force Reserve.

Active Citizen Air Force.

Medical Branch.

The following Air Cadet is provisionally appointed to a commission, 11th December, 1959, with the rank of Pilot Officer:—William James Hughes Caldicott (043089).

Marcus de Laune Faunce (268115) is appointed to a commission, 16th May, 1959, with the rank of Flight Lieutenant.

The College of Radiologists of Australasia.

F.F.R. EXAMINATIONS: INFORMATION FOR INTENDING CANDIDATES.

ENTRIES for the F.F.R. examinations to be held in Melbourne, commencing on October 10, 1960, close at the

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED JANUARY 16, 1960.[1]

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	..	2(1)	..	..	..	..	..	..	2
Amœbiasis	..	..	..	..	1(1)	..	..	..	1
Ancylostomiasis	3	..	1	..	..	..	3	..	7
Anthrax	..	..	..	..	..	..	..	..	..
Bilharziasis	..	..	..	..	..	..	..	..	..
Brucellosis	..	2(1)	..	..	..	..	..	..	2
Cholera	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus)	..	..	..	..	..	..	..	..	..
Dengue	..	..	..	..	..	..	..	..	..
Diarrhœa (Infantile)	4(1)	6(3)	12(10)	..	..	..	2	1	25
Diphtheria	..	..	..	..	..	..	..	..	..
Dysentery (Bacillary)	..	1(1)	1	..	2(1)	..	4	..	8
Encephalitis	1	..	1(1)	..	..	..	..	..	2
Filariasis	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice	..	..	..	..	..	..	..	..	..
Hydatid	..	..	..	..	..	..	..	..	..
Infective Hepatitis	59(25)	28(16)	15(6)	5(5)	1(1)	1	..	2	111
Lead Poisoning	..	..	..	..	..	..	..	..	..
Leprosy	..	..	..	..	..	..	..	..	..
Leptospirosis	..	..	3(1)	..	..	..	..	..	3
Malaria	..	..	8(8)	..	..	..	..	..	8
Meningococcal Infection	2(1)	1(1)	..	..	..	..	..	..	3
Ophthalmia	..	..	..	..	..	..	..	..	..
Ornithosis	..	..	..	..	..	..	..	..	..
Paratyphoid	..	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..	..
Poliomyelitis	..	..	..	..	..	..	..	..	..
Puerperal Fever	..	..	..	..	..	1	..	..	1
Rubella	..	9(3)	..	..	3(2)	..	..	..	12
Salmonella Infection	..	..	..	3(3)	..	..	..	..	3
Scarlet Fever	1	8(3)	4(1)	7(7)	..	2(1)	..	..	22
Smallpox	..	..	..	..	..	..	..	..	..
Tetanus	..	..	4(4)	..	..	..	..	..	4
Trachoma	..	..	..	..	2	..	9	..	11
Trichinosis	..	..	..	..	..	..	..	..	..
Tuberculosis	17(12)	21(18)	22(13)	4(3)	10(8)	4	3	81	81
Typhoid Fever	..	..	..	..	..	1	..	..	1
Typhus (Flea-, Mite- and Tick-borne)	..	..	..	..	..	..	..	..	..
Typhus (Louse-borne)	..	..	..	..	..	..	..	..	..
Yellow Fever	..	..	..	..	..	..	..	..	..

[1] Figures in parentheses are those for the metropolitan area.

office of the College of Radiologists of Australasia, 260 William Street, Melbourne, on March 3, 1960. The completed entry form must be at this office, addressed to Dr. R. Kaye Scott, Chairman of the Board of Examiners, at the above address by the due date, together with the entry fee of £42. New South Wales candidates may deposit their entries and cheques at the College Office, 135 Macquarie Street, Sydney, by March 1.

Candidates are aware that, if they are successful, a further fee of £21 is payable for the Fellowship. Negotiations are being carried out with the Faculty in this matter, as in previous years the Faculty agreed to halving the latter fee in view of the extra entrance fees payable by Australasian candidates on account of examiners' travelling expenses. If any candidate is in doubt about any matter concerning the examination, entry or fees payable, he should write immediately to Dr. R. Kaye Scott, Chairman of the Board of Examiners, at the above address.

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

Week-End Course in Thoracic Diseases.

THE Post-Graduate Committee in Medicine in the University of Sydney announces that a week-end course in thoracic diseases will be held at the Royal North Shore Hospital of Sydney on Saturday and Sunday, April 2 and 3, 1960, under the supervision of Dr. C. G. Bayliss. The programme is as follows:

Saturday, April 2: 9.30 a.m., "Public Health Aspects of Tuberculosis", Dr. Keith Harris; 9.55 a.m., demonstration of Heaf multiple puncture method of tuberculin testing, Sister Marshall Jones; 10 a.m., "Modes of Presentation, Diagnosis and Treatment of Pulmonary Tuberculosis", Dr. W. J. E. Phillips and Dr. B. L. Geddes; 10.45 a.m., discussion; 11.15 a.m., "Injuries to the Chest", Dr. I. Monk and Dr. H. J. Richards; 12.15 p.m., discussion; 1.30 p.m., "The Coughing Child", Dr. James Isbister and Dr. Clair Isbister; 2.20 p.m., demonstration of physiotherapy, Miss Colleen Smith; 2.30 p.m., discussion; 3 p.m., panel discussion, "The Management of Bronchial Asthma", Dr. C. G. Bayliss, Dr. A. G. McManis, Dr. James Isbister, Dr. W. J. E. Phillips, Dr. B. L. Geddes. A demonstration of physiotherapy methods used in asthma will be given by Miss Colleen Smith.

Sunday, April 3: 9.30 a.m., "Management of Spontaneous Pneumothorax", Dr. C. G. Bayliss; 10 a.m., "Management of Pleural Effusion", Dr. A. G. McManis; 10.30 a.m., discussion; 11 a.m., "Pulmonary Hydatid Disease", Dr. M. P. Susman; 11.25 a.m., discussion; 11.30 a.m., "Carcinoma of the Lung", Dr. I. Monk and Dr. H. J. Richards; 12.15 p.m., discussion.

The fee for attendance is three guineas. Early written application, enclosing remittance, should be made to the Course Secretary, the Post-Graduate Committee in Medicine, 131 Macquarie Street, Sydney. Telephones: BU 4497-8. Telegraphic Address: "Postgrad Sydney".

SURGICAL SEMINAR AT ST. VINCENT'S HOSPITAL, SYDNEY.

A SURGICAL SEMINAR will be held in the fifth floor lecture theatre of St. Vincent's Hospital, Sydney, on Monday, February 29, at 5.15 p.m. Mr. J. W. Graham will discuss "Complications of Biliary Tract Surgery". All medical practitioners are invited to be present.

ST. VINCENT'S HOSPITAL, SYDNEY: GASTRO-ENTEROLOGY UNIT.

A MEETING of the Gastro-Enterology Unit of St. Vincent's Hospital, Sydney, will be held on Thursday, February 25, 1960, at 5.30 p.m. Dr. P. George and Dr. W. Hennessy will speak on "The Investigation of Malabsorption States by Modern Methods".

Nominations and Elections.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

Adler, Edith Marion, M.B., B.S., 1959 (Univ. Sydney), 58 Cambridge Street, Stanmore, New South Wales.

Diary for the Month.

FEBRUARY 23.—New South Wales Branch, B.M.A.: Hospitals Committee.
FEBRUARY 23.—Tasmanian Branch, B.M.A.: Southern Subdivision.
FEBRUARY 24.—Victorian Branch, B.M.A.: Branch Council.
FEBRUARY 25.—South Australian Branch, B.M.A.: Scientific Meeting.
FEBRUARY 25.—Tasmanian Branch, B.M.A.: Northern Subdivision.
FEBRUARY 25.—New South Wales Branch, B.M.A.: Clinical Meeting.
FEBRUARY 26.—Queensland Branch, B.M.A.: Council Meeting.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

Editorial Notices.

ALL articles submitted for publication in this Journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations, other than those normally used by the Journal, and not to underline either words or phrases.

Authors of papers are asked to state for inclusion in the title their principal qualifications as well as their relevant appointment and/or the unit, hospital or department from which the paper comes.

References to articles and books should be carefully checked. In a reference to an article in a journal the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of article. In a reference to a book the following information should be given: surname of author, initials of author, year of publication, full title of book, publisher, place of publication, page number (where relevant). The abbreviations used for the titles of journals are those of the list known as "World Medical Periodicals" (published by the World Medical Association). If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors submitting illustrations are asked, if possible, to provide the originals (not photographic copies) of line drawings, graphs and diagrams, and prints from the original negatives of photomicrographs. Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary is stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2-3.)

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this Journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such notification is received within one month.

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